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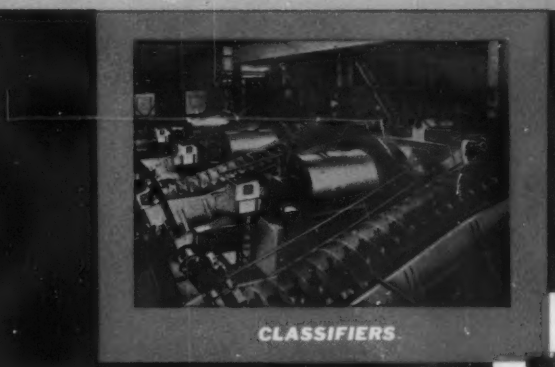

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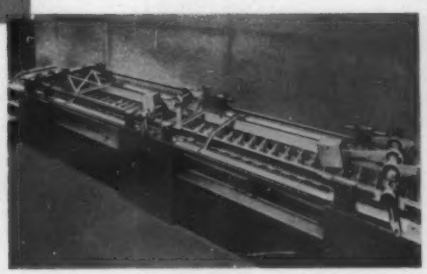

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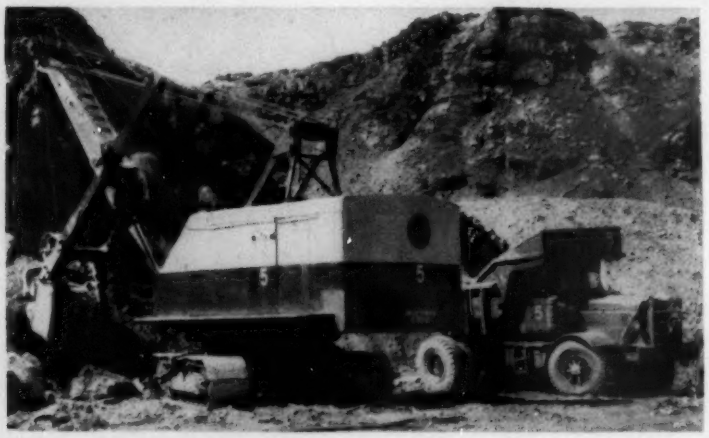

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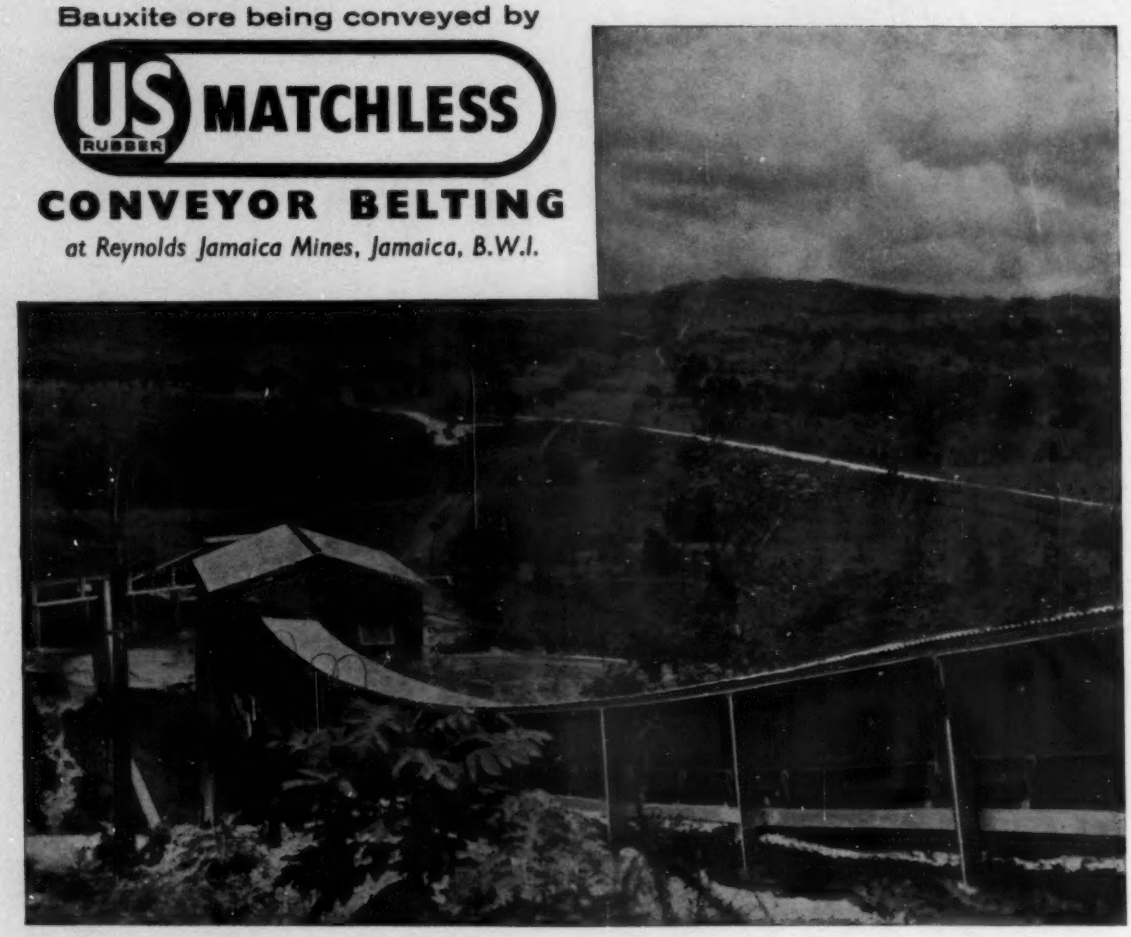

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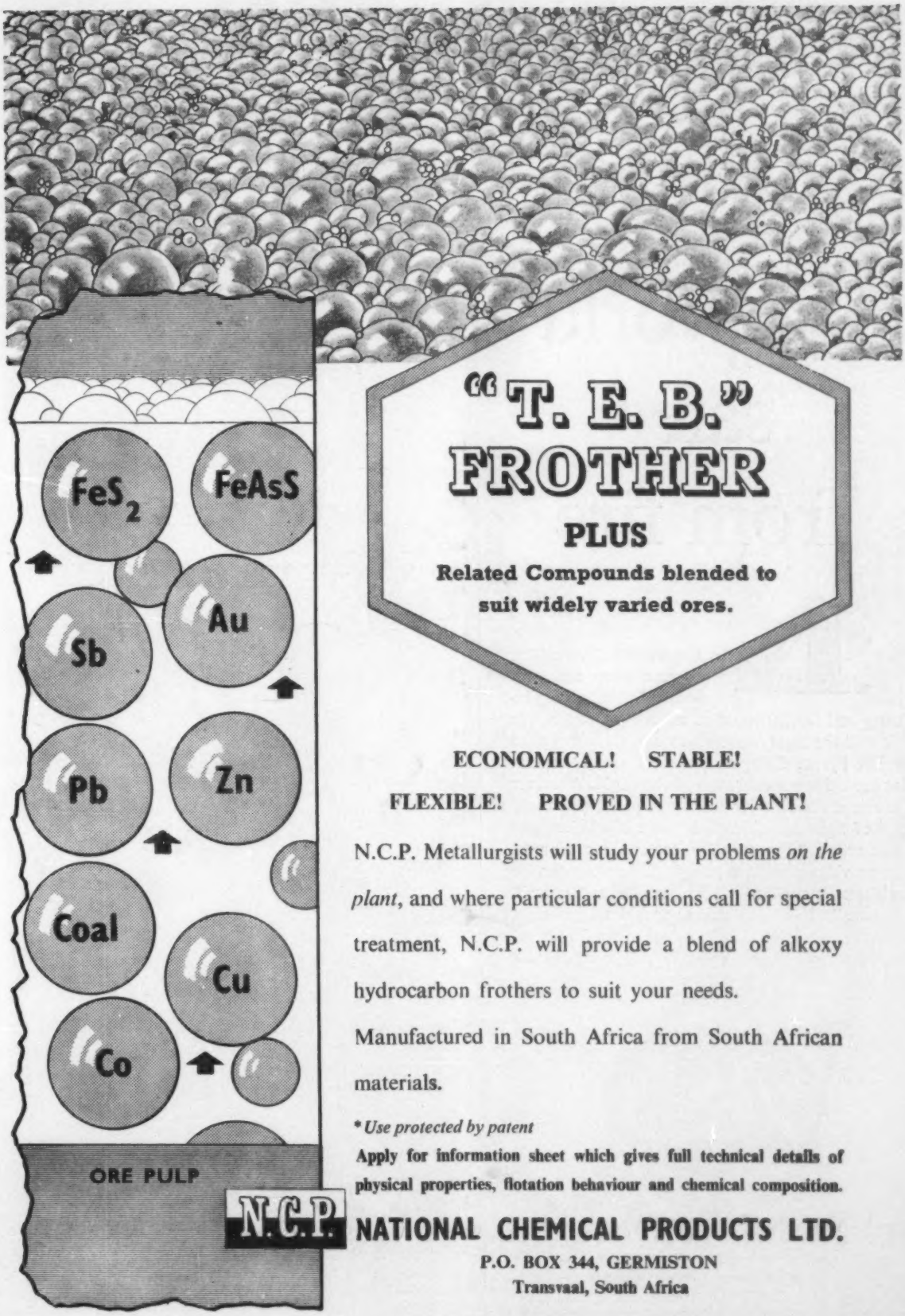

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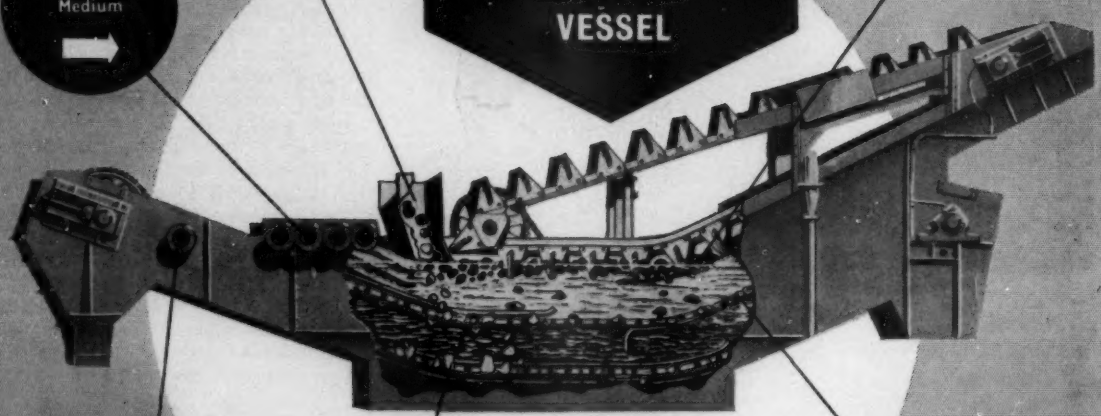

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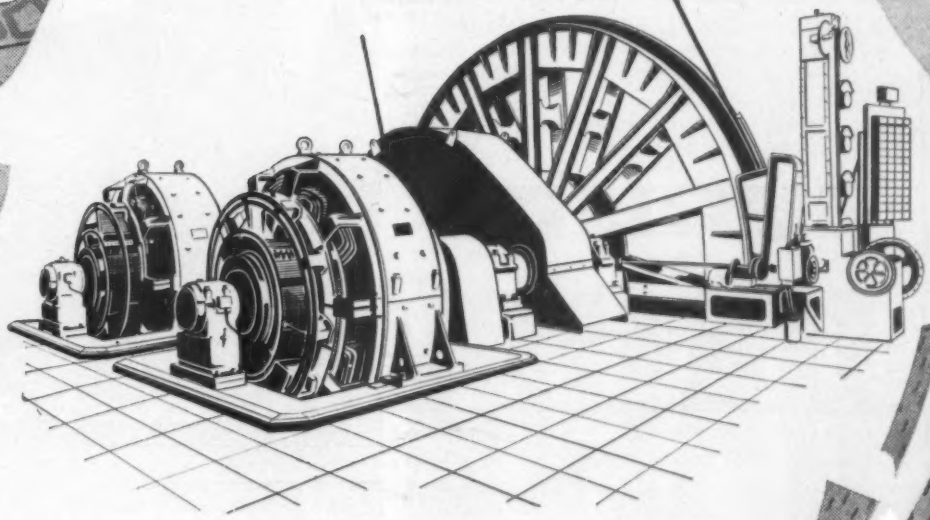

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The Mining Journal

London, November 21, 1958

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The Turn in the Tide

THE last year has not been a happy one for the world's copper mining industry, and the annual reports which have come from the Copperbelt this week inevitably reflect this situation. But they were written after the corner had been turned. Last year's reports gave warning of an unpromising time ahead; this year the message is that prospects are undoubtedly brighter.

One matter which was much in mind when the reports were written was the strike of European miners against certain of the Chamber of Mines' proposals for raising the operating efficiency of the Copperbelt properties. The strike has since been settled (see *M.J.* of November 7, page 499), but naturally, the reports have little in the way of comment on the attitudes taken up, or on the technique for securing agreement. There is, however, an easily discernible note of regret that, at a time when the slump in demand for the metal was causing grave inconvenience to the mining industry and to the economic development of the Federation, the strike should have cropped up to make things worse.

There is general agreement in the reports that, in the market circumstances of 1957, the decision to reduce output by 10 per cent was inevitable; and that in its outcome it was successful. Rhoanglo, of course, was much concerned with the way this general cutback should be applied within the group. In the event, it was decided to close Bancroft, to make compensating increases in output elsewhere to account for the fact that this would involve a reduction of more than 10 per cent and to make compensating payments to the Bancroft accounts. This was, undoubtedly, a great disappointment to shareholders of Bancroft. But the closure had its advantages, since it offered a unique opportunity to concentrate attention on studying and overcoming the root causes of the difficulties which beset the mine and to speed up development. The effects are already discernible in an appreciable lowering of the water table and a considerable improvement in mining conditions. At the same time rapid lateral development was started on several levels at No. 1 shaft so as to expose the ore over a wide area. All this work is progressing according to the schedule and the consulting engineers consider that the mining problems have largely been overcome.

The R.S.T. group, on the other hand, has not been beset by such internal difficulties and in his statements to shareholders Sir Ronald Prain has devoted much more of his attention to the wider issues involved in the decision to cut back output in the Free World; cutbacks which, in the aggregate, were equivalent to an annual production rate of 450,000 tons. Last year he expressed the view that if the majority of larger producers adopted such a course, the degree of curtailment then necessary to balance the statistical picture might not be unduly great, and he was also of the opinion that production restriction appeared to present the best chance of stabilizing the copper position as compared with the various other suggestions which have been made from time to time for a solution of this problem. The events of the past year appear to have justified this view and indicate that the copper

industry may be putting its house in order by the soundest and least painful method as Sir Ronald describes it.

There is no doubt as to the other solutions to which the reports here refer. Foremost among them is, of course, some sort of official commodity control scheme such as now exists for tin. Certainly the experiences of international tin control over the past year has not been such as to encourage other sections of the mining industry to follow suit, although the problems confronting the tin industry have probably been more intractable. There can be little doubt that, if the copper industry continues to handle its affairs so successfully, we shall not hear a great deal more of the demands for a United Nations commodity scheme.

There is, however, one point worth making in this connection, for Sir Ronald goes on to express a more general view for the future. He suggests that the solution would appear to lie in the ability of the mining industry to produce enough copper to meet the expanding consumption of the world, and yet not hesitate from time to time to adjust this production rate at periods of low consumption: in this way it might be possible to avoid the swings in price which have characterized the past seven or eight years. It is his opinion that, providing the copper industry has learned this lesson and is prepared to take steps to prevent such occurrences again, copper has prospects which few other commodities can equal in promise.

This is all very well. But one cannot forget that the great squeeze in copper was set off on its course by a disastrous miscalculation by the American producers of world (or, more specifically, European) demand. One would feel happier about the world's producers regulating supply (as in self-defence they are bound to do anyway) if they showed more awareness of the technique of international commodity marketing and especially of the right way to use the London Metal Exchange. Of course, the stoker is the best man to regulate the boiler; but there are too many American stokers trying to do it without a pressure gauge.

Sir Ronald is certainly not the man to decry the use of the pressure gauge. But he is not at all certain that it is being put in the right spot to get a true reading. He maintains that a premium of £10 has been regularly paid over the L.M.E. quotation against physical delivery of electrolytic wirebars. He believes this is inevitable so long as the L.M.E. contract leaves the delivery option to the seller. In his view it is most desirable that a further attempt be made to introduce a London Metal Exchange contract under which buyers will have the option of specifying the type of copper they wish to receive. This is a valid point and worth considering again. Copper is already out of the doldrums and entering a new phase of expansion. It would be a happy augury if the producers and the professional market could work together to regulate prices instead of working at loggerheads, as they often appeared to do a year or so ago.

There is little in the reports this year about the other developments in the Federation with which both groups have concerned themselves. Both groups have continued their explorations but have nothing spectacular to record. Rhoanglo's interests in Rhodesian Iron and Steel Co. and in Rhodesian Alloy have both suffered from trading conditions. R.S.T.'s Kafue Flats Scheme has made only slow progress because of the flooding of the experimental polder. There is, however, evidence of concern with the setback that the Federation has suffered.

Since the war the growth of the economy of the countries now comprising the Central African Federation has been truly remarkable. Both mining and agricultural output have increased nearly three-fold in terms of value, while that of the manufacturing industry has quadrupled. Unfortunately, the Federal economy, which is so largely dependent on the sale of its mineral output, is particularly vulnerable to downward trends in the price of metal, with the result that this rapid growth has been temporarily checked. Moreover, if full advantage is to be taken of the abundant electrical power which Kariba will make available, and of the greatly improved railway facilities to which the copper mining companies have contributed, much capital will be required both internally and from abroad.

As Mr. Oppenheimer points out, the solution to the problems of Africa depends largely on rapid economic development; capital to bring such development is, therefore, necessary. In this wider context a stable and prosperous copper mining industry, in a position to make its maximum contribution to African advancement, is essential not only to the Federation itself, but to the economic defences of the Free World as a whole.

RUSSIA'S SEVEN-YEAR PLAN

In his report to the 21st Congress of the Communist Party of the Soviet Union, Khrushchev gave targets for development of the national economy of the U.S.S.R. from 1959 to 1965. The long-term plan for the development of Russia's national economy for the next fifteen years provides for the doubling or trebling of the output of the key branches of industry.

The target figures for 1959-65 envisage a rapid pace in the development of the national economy, with the necessary proportions being ensured; a substantial increase in the production of ferrous and non-ferrous metals; accelerated development of the chemical industry; a change in the structure of the fuel balance by the priority development of the production of oil and gas; rapid develpoment of the electrification of all branches of the national economy by building in the main big fuel-burning power stations; the technical reconstruction of railway transport on the basis of electrification and the large-scale introduction of diesel traction; the further advance of all branches of agriculture, and rapid expansion of housing construction.

The further development of the natural resources of the eastern areas of the U.S.S.R. will be given emphasis in the coming seven-year period. With this aim in view, provision is made for building a big iron and steel centre in Siberia and Kazakhstan—the third in the U.S.S.R.; for considerably developing non-ferrous metallurgy in Kazakhstan, Central Asia, the Urals, and the Transbaikal Territory; for developing power engineering in Siberia by using cheap coal; for stepping up the development of the oil and gas industry in the areas between the Volga and the Urals and the gas industry in Uzbekistan, and for speeding up the expansion of the chemical industry in the eastern areas of the U.S.S.R.

At the same time, it is envisaged that all possibilities of stepping up the development of the productive forces in the European part of the country will be utilized.

The draft target figures envisage an accelerated development of the iron and steel industry, and especially ore mining. In 1965, it is planned to produce between 65,000,000 and 70,000,000 tons of pig iron, or 65 to 77 per cent more than in 1958; steel, 86,000,000 to 91,000,000 tons, or 56 to 65 per cent more; roiled metal, 65,000,000 to 70,000,000 tons, or 52 to 64 per cent more.

In order to ensure supplies of iron ore for the expansion of the iron and steel industry, it is envisaged that new iron ore deposits will be developed, mainly opencast workings, and that big ore-dressing enterprises will be built. It is

envisaged that 150,000,000 to 160,000,000 tons of marketable iron ore (230,000,000 to 245,000,000 tons of crude ore) will be produced.

As regards the expansion of the non-ferrous steel industry, provision is made for the output of aluminium to be increased, as compared with 1958, by 180 per cent, and refined copper by 90 per cent. The output of nickel, magnesium, titanium, germanium, and other non-ferrous metals, and especially rare metals, will be substantially expanded.

A powerful aluminium industry is to be built up in the Krasnoyarsk Territory in Siberia in order to make use of the large nepheline reserves and to obtain, as by-products, cheap cement and soda products.

The output of diamonds in 1965 will have increased by about fourteen times over as compared with 1958.

The share of oil and gas in the total volume of fuel production will increase from 31 per cent at the present time to 51 per cent in 1965, while that of coal will decrease from 59 per cent to 43 per cent. It is planned to bring oil production up to between 230,000,000 and 240,000,000 tons in 1965—an increase of more than 100 per cent as compared with 1958.

TECHNICAL ASSISTANCE FOR IRAN

In a world which, politically and economically, is in the melting pot, there are few developments of more far-reaching significance than the universal urge for higher living standards, from which very few countries are exempt. In the less highly developed nations this has led to planned programmes of economic advancement in which the mining industry occupies a key position. Financial aid has been forthcoming from the industrial powers, whether individually or collectively through such organizations as the World Bank, but much of it is dissipated through the inadequate use of technical aid.

In the territories to which financial aid is flowing will arise new or expanded mining industries, which will be almost wholly dependent on imported machinery and equipment. It is therefore vital that British technical aid should readily be available wherever conditions do not preclude the use of British consultants. Unfortunately, British technical aid has been on an infinitely smaller scale than British financial aid, for reasons which were discussed in some detail in our issue of October 17, page 413.

Particularly welcome, in view of our failure to provide our mining consultants with the opportunities they deserve, are the openings for British skill and experience which arise from other sources. In this connection it is noteworthy that a British mining engineer, Mr. John R. Thom, has accepted an appointment from the United Nations Technical Assistance Administration to advise the Government of Iran in the search for and in the exploitation of coal and metallic minerals. Before this appointment Mr. Thom was a member of the Powell Duffryn Technical Services, in which capacity he spent one and a half years in Korea advising on improvements in mining in association with UNKRA.

The appointment, which was made at the request of the Government of Iran, is part of the programme of the United Nations and the Specialized Agencies to assist less developed countries to exploit natural resources, improve living conditions, solve development problems, and to maintain and raise health standards. Mr. Thom's appointment is for one year, and possibly longer, and during that time he will be working as a member of a team of U.N. experts, among whom is a geologist and a mine engineer. Mr. Thom will be particularly concerned with boring and underground workings. He will advise the Iranian personnel in the work suggested by the geologist and mine engineer with a view to obtaining the highest possible safety standards and at the same time the greatest possible production.

MINING IN NEW ZEALAND STILL AT A LOW EBB

Apart from the production of non-metallics, which was well maintained, the annual statement for 1957 gives little evidence of any recovery in New Zealand's mining industry, which for several years has been at a low ebb.

For the first time since 1954 gold production showed a modest improvement, amounting to 30,195 oz. as compared with 26,063 oz. in 1956. The Snowy River dredge ceased operations in March, 1957, however, and now there are only three dredges working—two on the West Coast and one at Alexandra. During the year no prospecting of any consequence was undertaken for gold.

There was little interest in base metal mining last year, due to the low prices ruling overseas, and prospecting was at a minimum. By the end of the year the fall in the price of scheelite overseas had brought mining at Glenorchy almost to a standstill. During the year some 30½ tons of scheelite, valued at £10,000, were produced.

Prospecting for uranium minerals was continued during 1957, but on rather a limited scale. Uranium minerals were discovered in two additional areas of Hawk Crag Breccia, one at Bullock Creek south of the Fox River occurrence, and the second in Blacksand Creek, a tributary of Big River on the eastern flank of the Paparoa Range. Conditions in both areas are similar to those at Buller Gorge in that the country is rugged and bush-clad, there is a heavy rainfall, and access presents difficulties. Under these circumstances progress has been slow and as yet it has been impossible to assess the value of these areas.

Disappointment is expressed in the report that prospecting and sampling work at the Buller Gorge area south of the river has not yet reached the stage when the grade of the ore can be determined, and accordingly the area still remains in the attractive prospect stage. The continuous and heavy rain experienced in this area during the year greatly retarded prospecting operations, as well as the access road under construction. It is hoped that completion of the road will facilitate prospecting and that assessment of the value of the deposit will then be made.

Some attention has been paid to occurrences of radioactive minerals in other localities, in particular to an occurence at Kawatiri, but so far without any result of economic importance.

There was a substantial increase in the production of diatomite in 1957. Output reached 3,158 tons, as compared with 136 tons in 1956. The material is used for the manufacture of light concrete. Other non-metallics produced in New Zealand last year included asbestos, bentonite, dolomite, and limestone, magnesite, perlite, pumice, and silica sand.

During 1957, 2,612,463 tons of coal were mined in the Dominion as compared with 2,627,716 tons in 1956. Of this quantity 1,875,041 tons were produced from underground mines. Production from opencast mining at 737,422 tons was lower by 59,568 tons than in 1956. This decrease reflects lessened demand by consumers.

Due to the increasing quantity of oil fuel being used in New Zealand, it is becoming more difficult to maintain some of the coal mines on a full production basis. Oil fuel competition is cutting into the demand for slack coal by the manufacturing industries and dumping of slack coal from the mines cannot be avoided.

SAINT PATRICK'S COPPER MINES—I.

Copper and Pyrites at Avoca

THE Avoca mine, operated by Saint Patrick's Copper Mines Ltd., is situated in the County of Wicklow, on the eastern seaboard of Ireland, adjacent to power, road and rail services. The mine is being prepared for an eventual production of 4,000 tons of copper/pyrites ore, but is currently being worked at approximately half that rate. When in full production it will yield 160 tons of concentrate daily, equivalent to 40 tons of pure copper. Operating costs are estimated at £1 per ton, or £4,000 per day. Exploration work to date has disclosed reserves amounting to 20,000,000 tons, which are sufficient for fifteen years' production at the scheduled milling rate.

The company hopes to arrange for the sale of the pyrites concentrate that will be produced as a by-product.

History

Though surface indications probably encouraged mining many centuries ago, some of the first written records are of underground work in the 1750s. From then until about 1880 mining was more or less continuous. The known workings extend for two and three-quarter miles.

Until about 1850 the main interest was copper. Bearing in mind the limitations of the equipment formerly available, the amount of work done underground is astonishing. There are over 100 shafts ranging in depth up to a maximum of 700 ft. There is one long drainage tunnel driven into the hillside from river level, which is fully two miles long, and it is recorded that some 4,000,000 tons of ore were won from it. It seems that in good times over 2,000 persons were employed, including women and children, who were mainly engaged on the surface breaking up the chunks of rock and hand-sorting the ore. In peak periods up to 1,000 ass-cars transported ore to the port of Arklow.

Some copper was won by precipitating the metal held in solution by the highly acidic mine water in ponds containing scrap iron. The ore itself was shipped to the smelters of South Wales in the schooners that brought the coal for firing the boilers of the Cornish steam pumps. The ruins of the masonry engine houses are a feature of the Avoca landscape at the present day

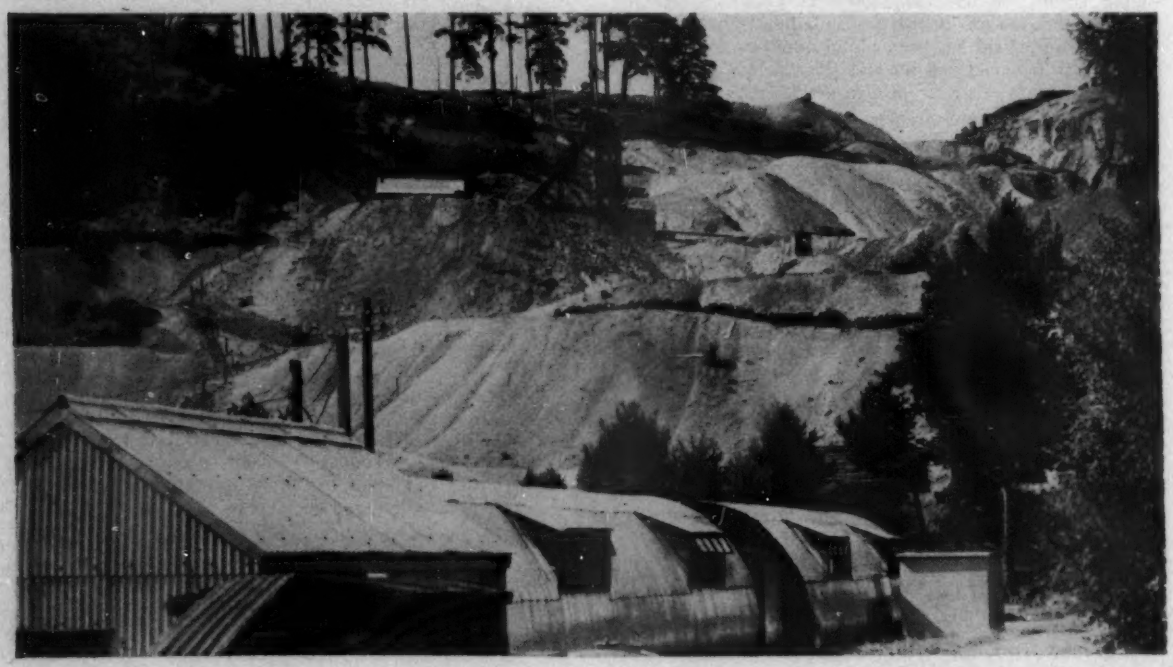
During the nineteenth century Sicily was the main source of sulphur, a commodity of vital importance for the development of Britain's rapidly growing industrial economy. The producers took advantage of this situation and pushed the price up so high that the manufacturers looked for other sources of supply. The mining of pyrites then became of great importance at Avoca.

The cessation of mining about 1880 is usually ascribed to engineering difficulties and to competition from large higher-grade mines overseas. Before, during and between the two wars the deposits attracted some attention, but little was done and there was no real production. In 1949, Mianrai Teoranta, the government-sponsored mining company, was asked to study the potentialities of the mines in the light of modern methods, machinery, and metallurgical techniques.

An old shaft, 450 ft. deep, was reclaimed and deepened by a like amount. This brought the operators well under the deepest of the old workings. Some 2,500 ft. of tunnel was then driven parallel to where the orebodies would be located if they extended downwards. The zone was prospected by close-pattern drilling with diamond-core drills.

Part of the Saint Patrick's property at Avoca, where Europe's largest copper mine has been established on the site of former workings

Photo: Irish Independent.



while further drills on the surface probed the flanks of the known mineralized zones. The continuation downwards of the mineralization was proved, and it was shown that a considerable width existed alongside the old workings which, though valueless to the old miners, was economic today.

Geology

General geological considerations suggest the possibility of a very extensive mineralized zone in the Avoca region, flanking the eastern margins of the Leinster granite.

The known mineralization consists of a rather low-grade but extensive introduction, from an ancient and deep-seated magma chamber, of sulphides of copper, iron, lead, and zinc. These minerals are concentrated into orebodies along favourable shear zones in the host rocks, which consist of volcanic and intrusive types with subordinate fine-grained sediments. The rocks are very tightly folded and even over-turned. The mineralized ground trends ENE.-WSW., straddling the valley of the Avoca River, and has a proved strike-length of three miles, a width of more than 1,000 ft., and a vertical depth exceeding 1,500 ft. The orebodies occur as lenses in echelon parallel with each other and with the trend of the host rocks, being steeply inclined to the south at 45 to 75 deg., and pitching more gently westward at around 25 deg.

Economic mineralization extends locally up to surface topography, the surface ranging from 200 to 550 ft. above sea level. The section under immediate exploitation is 2,100 ft. long and lies just west of the Avoca River, in the townlands of Ballygahan and Ballymurtagh. The greatest depth currently being worked is 650 ft. below local ground surface.

The main minerals of economic value are chalcopyrite containing 34 per cent copper and very much larger quantities of pyrites containing 53 per cent sulphur. There are relatively small and localized concentrations of lead and zinc sulphides. Small but significant gold and occasional silver values are also encountered.

Extending through the block being developed for mining are two major orebodies known as the South Lode and the Pond Lode, but these result from different types of mineralization and are not really separate bodies. The South Lode, which is the main orebody, is up to 180 ft. wide. It contains about 1.2 per cent chalcopyrite and 7 per cent sulphur. The Pond Lode is a much narrower orebody, 50 to 60 ft. wide at the level now being mined, which contains 0.9 per cent copper and up to 25 per cent sulphur. These lodes have yet to be fully explored, but contain at least 19,000,000 tons of ore, most of which grades over 1.1 per cent copper with an overall average of about 11 per cent combined sulphur. Similar large orebodies are known to exist in East Avoca, but these have yet to be thoroughly investigated.

Manganese Deposits of Cuba

This article is abstracted from *Geology of the Manganese Deposits of Cuba*, by Frank S. Simons and John A. Straczek (Geological Survey Bulletin, 1057, obtainable from the Superintendent of Documents, U.S. Government Printing Works, Washington 25, D.C., United States.)

CUBA is underlain by rocks ranging in age from Paleozoic to Quaternary. Pre-Tertiary rocks are exposed over about one-third of the island. The oldest rocks are metamorphized sedimentary, volcanic and intrusive rocks, principally mica and chlorite schists and crystalline limestones, that crop out in four rather widely separated areas, namely : on the Isla de Pinos, where they are the dominant rock, in the Sierra de Trinidad in southern Las Villas, in extreme north-eastern Camagüey, and in the Sierra de Purial, in eastern Oriente. No fossils have been found in these highly metamorphized rocks.

The next oldest stratified rocks appear to be sedimentary and volcanic rocks known from fossil evidence to range in age from late Jurassic to late Cretaceous. These rocks crop out over most of the area of Pinar del Río, Las Villas and Camagüey provinces, and are exposed in many smaller areas in northern La Habana and Matanzas, as well as in parts of Oriente.

Intrusive igneous rocks are widespread and are chiefly more or less serpentized ultramafic rocks and bodies of gabbro, troctolite, and anorthosite. There are also some plutons of granitic rocks that appear to be mainly of dioritic to quartz dioritic composition.

The Manganese Deposits

Manganese deposits occur in Pinar del Río, La Habana, Las Villas, Camagüey and Oriente provinces, but almost the entire production of manganese ore in Cuba has come from Oriente.

The manganese deposits of Pinar del Río are in widely separated areas in the northern and western parts of the province. Deposits are found south of Mendoza; in the vicinity of Gramales, 30 kms. west-north-west of the city of Pinar del Río; near San Vicente and La Palma, north of Pinar del Río; and south-west of Bahía Honda on the north coast.

On the Isla de Pinos, a part of La Habana province, manganese has been found in two localities, one west and the other north-east of Sante Fe.

In Las Villas, the only known manganese deposits are on the south coast, about 10 kms. west of the town of Trinidad, and near the north coast at Amaro, Quemade de Güines, and Sierra Morena.

The manganese deposits of Camagüey are on the north slopes of the Sierra de las Cubitas, about 45 kms. north of the city of Camagüey, and at Finca Santa Clara, about 25 kms. south-east of the city of Camagüey.

Oriente—The Chief Manganese Province

All the productive manganese deposits of Oriente have been found in the south-western part of the province along an eastward-trending belt extending from Yara and Pilón in the west to Ramón de las Yaguas in the east and embracing an area of about 7,800 sq. kms. The area is served by the main line of the Ferrocarriles Consolidados de Cuba and by branch lines between San Luis, Bayamo and Manzanillo, and between El Cristo and La Maya. The eastern districts are also served by the rail line of the Guantánamo and Western Railroad connecting San Luis and Guantánamo. The shipping point is the seaport of Santiago de Cuba. Most mines are reached by dirt or gravelled roads,

but those in the Palmarito and Sabanilla districts, for the most part, are reached only by rail. Many small mines and prospects are accessible only by trail.

Minor deposits are scattered along the south coast of Oriente between Pilón and La Plata, and there are a few deposits in the Sigua district. Other deposits are reported in the vicinity of Guantánamo. In the northern part of the province, small deposits are known east and northeast of Holguín, and others have been reported near Baracoa.

In 1946, reserves in Oriente were believed to exceed 1,000,000 tons of concentrates from high-grade and milling-grade ore and about 4,500,000 tons of low-grade crude ore. Deposits in other provinces have been too little developed to permit any sound estimate of reserves, but almost certainly only Pinar del Río and Las Villas have appreciable reserves.

Present Investigation

The investigation described by Simons and Straczek began in November, 1940, with the consent and co-operation of the Cuban Dirección de Montes, Minas y Aguas, Ministerio de Agricultura, as part of a programme of geological investigations in the American Republics sponsored and financed by the U.S. Department of State. Its purpose was to determine the productive potentialities of the manganese-bearing regions by geological studies that would permit a valid estimation of reserves and lineation of ore deposits and manganese-bearing areas most favourable for prospecting, exploration and development. Another purpose was to aid in the realization of this potential production by detailed mine mapping to furnish mine operators a basis for exploration and development. The work of the Geological Survey was begun in the winter of 1940-41.

This report is a compilation and expansion of the results of investigations of Cuban manganese deposits by all Survey workers assigned to the project during the period 1940-45. Much of the information included has not been released before. Prominence is necessarily given to the results of intensive mapping and examination of the deposits of south-western Oriente, where by far the bulk of survey work has been concentrated.

Descriptions are given of 172 mines, mine groups or prospects. For space reasons, however, the report does not include a complete description of the Quinto deposit at El Cristo in Oriente, which furnished approximately one-third of Cuban production during 1940-46.

History of Mining

The presence of manganese deposits in Cuba was probably known in early colonial times, perhaps as long ago as the 16th century. Coming to more recent times, manganese was discovered in 1882 in Oriente, near El Cristo, Ponupo and Bueycito. The first ore shipment, a 50-ton lot from the Boston mine near El Cristo, is said to have been sold in the U.S. in 1887.

From 1907 until 1915, mining was at a virtual standstill. In the latter year, however, increased demand and higher prices due to the World War brought about a reactivation of mining. Old mines were reopened and new deposits were discovered. By that time nearly all of the known districts and most of the mines of Oriente had come to light and many deposits had been found elsewhere in Cuba. The armistice ended the abnormal demand for manganese ore, and cancellation of purchase contracts, together with a great drop in prices, brought mining again to a standstill. Many claims were entered against the U.S. Government by mine operators who had sustained financial losses in attempting to develop the various mines and prospects.

Between 1921 and 1926 a total of 71,588 l.tons of ore was exported to the U.S. A large concentration plant was constructed in the Bueycito district, but after about 150,000 tons of ore had been milled, the plant was shut down, apparently because of low prices and exhaustion of suitable ore.

Production declined in the next six years, but during this period the Cuban Mining Co. was organized, and the mines of the Ponupo and El Cristo districts were reopened and brought into small-scale production. In 1931 control of the Cuban Mining Co. was obtained by the Freeport Sulphur Co. Intensive churn-drill exploration of the Quinto deposits in El Cristo district and of several deposits in the Ponupo district were undertaken by the company and sufficient low-grade ore was blocked out to warrant construction of a 1,000-ton concentration plant utilizing flotation and sintering of flotation concentrates. The first successful application of flotation techniques in the concentration of manganese oxide ores was achieved with this plant, although many difficulties beset the company during the early years of operation.

The Cuban Mining Co.

With the advent of the Cuban Mining Co., production increased rapidly and rose from a nadir of 2,071 l.tons in 1930 to 105,936 tons in 1939. The company's purchases of ore from independent producers awakened interest in many small mines and the outbreak of the Second World War in 1939 provided an additional stimulus.

During 1939 many mines in Oriente were reopened and by 1940 several new deposits, including the Corinto and the large high-grade deposits of the Taratana group, had been found. With the entry of the U.S. into the war in December, 1941, the need for manganese ore became greater. Production reached the maximum of 306,298 l.tons of metallurgical grade ore in 1943, and then declined to 253,791 tons in 1944 and 194,875 tons in 1945. After the end of the war output decreased rapidly. The sintering plant of the Cuban Mining Co. ceased operation on December 31, 1946, with the exhaustion of open-pit ore, after having produced more than 1,200,000 tons of sintered concentrate. During the years 1947-49 inclusive production of metallurgical grade ore averaged only 39,070 tons per year.

Up to 1946 practically all the ore produced in Cuba was of metallurgical grade, but in 1946 the Tennessee Eastman Corporation initiated the purchase of chemical grade ore, of which 25,651 tons was produced from 1946 to the end of 1949.

Total Production in Cuba

Total production from the inception of mining about 1888 until 1953 is estimated at nearly 3,500,000 tons. The largest producers have been the Charco Redondo, Ponupo and Quinto Mines in Oriente.

To bring this record up to the present it might be added that the Korean War gave further stimulus to production, which remained at a high level for several years, although in the period January-July, 1957, shipments declined to 97,507 tonnes from 148,394 tonnes in the corresponding period of 1956.

Inter-American Industries Inc. is now operating in Oriente Province the first heavy-medium plant to be built in Cuba for the concentration of high-grade manganese ores, a monthly rate of 1,000 tons of concentrates being attained.

Improving the Efficiency of the Coal Mining Industry

The following article is condensed from the Cadman Memorial Lecture given by H. A. Longden, director-general of production, National Coal Board, and president, Institution of Mining Engineers, at the Royal Society of Arts on Wednesday of this week. Mr. Longden prefaces his remarks by pointing out that the future estimates of demand on which planning had been based were that there would be a ready sale for 228,000,000 tons of coal in 1960 and for 240,000,000 tons in 1965, of which deep-mined production would contribute 216,000,000 tons and 228,000,000 tons respectively.

THE coal market is dependent on the amount of coal used by a number of different industries, and it may be interesting and instructive to consider recent individual trends in the main categories of consumption. The table below covers the period from 1947-1957.

It will be seen that the increases in demand are for gas-making, electricity and coke ovens, and for all these markets small coals of suitable quality are needed.

The Consumption Picture

The decline in consumption by the gas industry in 1957 was mainly due to the mild winter and to the increased use of electricity and paraffin for domestic heating, which has also affected the house coal market. Due, in fact, to coal rationing and also to a change of taste by the consumer, domestic consumption both of house coal and of gas has remained static for a number of years. It seems probable that both markets have reached their peak and will decline in the future. Industrial consumption of gas, however, is on the increase.

The figures show a large increase in coal consumption for generation of electricity over the last ten years, but the amount of coal sold to power stations during the past eighteen months has not increased in step with the power generated, and this must be attributed partly to the Government's decision in 1954 to switch a number of its projected new stations to oil-firing, because of an expected shortage of coal in future years. It is a strange and unfortunate irony of fate that the completion of some of these plants should coincide with mounting pithead stocks of coal.

The decrease in consumption by the railways over the past ten years is much as expected, and reflects the progress of British Railways' programme of dieselization and electrification.

Sales to coke ovens showed a healthy increase until the beginning of this year, when they started to drop owing to the present recession in the iron and steel industry. There is, however, no substitute for coke in the smelting process, and we may expect an increased demand for coke when the iron and steel industry picks up again. A similar improvement in the demand for coal from general industry cannot necessarily be expected. Because of its convenience and present cheapness, and even technical superiority in certain specialized processes in industry, fuel oil has made substantial inroads into the market offered by engineering and general industry, and coal may continue to lose ground in this field.

DISPOSAL OF AVAILABLE COAL SUPPLIES (INCLUDING OPENCAST AND IMPORTED) 1947-1957

	1947	1956	1957	1957 *compared with* 1947
	million tons	*million tons*	*million tons*	*increase or decrease*
Gas Industry ...	22.7	27.8	26.4*	+16%
Electricity Industry	27.1	45.6	46.5	+72%
Railways ...	14.6	12.1	11.4	−22%
Coke Ovens ...	19.8	29.3	30.7	+55%
Industrial Consumers				
(i) Iron and Steel	8.7	6.1	5.6	−36%
(ii) Other Industries	31.4	33.3	31.9	+ 2%
Domestic Market	36.6	37.1	35.1*	− 4%
Other Inland ...	21.3	24.1	22.6	+ 6%
Total Inland ...	182.2	215.4	210.2	+10%
Exports and Bunkers	8.0	12.7	10.9	+36%
Total Inland and Exports	190.2	228.1	221.1	+11%

*The winter was exceptionally mild.

Finally, a word about exports. In the past this country had a very substantial export market, but since the last war we have been unable, because of the pressure of home demand, to maintain regular supplies to our overseas customers. In consequence, many of them on the Continent have entered into long-term contracts with other suppliers, notably the United States of America, who are at the present time further assisted by very favourable transatlantic freight rates. Poland, too, has lately entered the export market, offering delivered prices which in some cases are below pithead prices in Great Britain, and at the same time the producing countries of Western Europe—Germany, France, Belgium—are now, like ourselves, encountering serious difficulties in disposing of their output. It must, therefore, be some time before we can recapture our foreign markets and only then if we can guarantee a steady supply over the years at prices which compare favourably with our competitors. It is also salutary to remember that even before the last war, when we were selling large tonnages abroad, the coal was virtually all sold at prices lower than those realized in the home market.

Despite the existence of the overpowering American oil industry, coal maintains the lion's share of the market for electrical power generation and has *more* than held its own against oil in the past decade. The figures for Great Britain show a similar though less spectacular upward trend and, as one might expect, almost complete dependence on coal.

The Need for Improved Efficiency

It must be stressed that the American coal industry has only held its own in the face of intense competition from indigenous oil by achieving an efficiency of production in terms of output per manshift (O.M.S.) which, making all necessary allowances for our more difficult conditions, has not been matched by our own industry.

The table overleaf compares productivity, earnings and proceeds in the American and British mining industries. Since productivity in Britain rose by not more than 13 per cent over the ten years 1947-57, the industry had little possibility of absorbing the increases in wages which were

largely necessitated by inflation, hence the price of coal rose by over 100 per cent. In America, by contrast, productivity rose so much more—some 60 per cent—and inflation of money wages was so much less, that it has been possible to keep necessary increases in coal prices within 25 per cent.

There could be no better time to study this problem than the present, when the industry is able to produce more coal than is for the time being needed, when we have approximately 35,000,000 tons of stocks at the pithead and in consumers' hands, and when oil and paraffin are making perceptible inroads into certain of our markets.

Mr. Longden described many current mining machines. "Coal, however, is not got by machines alone, and we have to consider the human beings who have to work in the pits and what effect these machines will have on them."

In the old days all the power required for getting the coal, making roads, drilling holes, setting supports, etc., was human power, and the only help at the face was from explosives.

Mechanized Mining

With the advent of the conveyor, which brought the first concentration on shorter lengths of face, it was quite usual to find on big faces teams of thirty to fifty men filling on to the same belt, and it became necessary for all to be paid a common wage—still, of course, related to the total tonnage filled. This monotonous job of filling coal day by day compared unfavourably with the earlier system, whereby the miner not only did the filling, but also the getting of the coal, the ripping, the packing, setting of supports—in fact, all the various skilled tasks at the face. The new system also had the disadvantage that any man of more than average physical ability, wishing to earn rather more than some of his mates, was not able to do so because all went into the common pool. It is true, of course, that rippers and packers and cutter men remained in relatively small teams, but they still had a much narrower field in which to work and there was more monotony than previously, although this very system had substantially reduced the amount of physical work in each of these different fields.

Mechanized mining today has taken another great step forward so far as the filler is concerned. A small team of men now operate a machine which does all the hard work for them, and there is ample evidence of a return of the old team spirit. On such faces the pick is virtually obsolete, the shovel little used, and men have only to guide and control their machine and set the supports behind it. Conveyor then no longer dismantle and re-erect the conveyor by hand, but use compressed air or hydraulic power to push it forward to its new position. Rippers still have some heavy work to do, but the machines already available have done much to reduce their load.

One of the greatest difficulties in paying a man by the amount of work he does has always been that he is working in surroundings which can vary from day to day, due simply to the fact that geological conditions can themselves vary as rapidly. Methods of payment by contract have always been based on what are assumed to be average conditions in the particular circumstances, and it has always been difficult to assess precisely the effect of day-by-day variations on which allowances for difficulties were payable. The result was that the industry's wage negotiation system in the past was always very much a catch-as-catch-can affair under which employer and workman alike sometimes got a good bargain and sometimes a bad one.

PRODUCTIVITY, EARNINGS AND PROCEEDS

	U.S.A.*			Great Britain†		
	1947	1957	*Increase*	1947	1957	*Increase*
Output per Manshift (l.tons)	4.90	7.86	60%	1.09	1.23	13%
Earnings per Manshift	$13.12	$24.16	84%	27s. 8d.	57s. 2d.	107%
Proceeds per l.ton	$4.66	$5.71	23%	40s. 3d.	82s. 1d.	104%

* Earnings and Proceeds refer to all bituminous mines; O.M.S. to deep bitminous mines only.
† Figures refer to all deep mines.

Application of Method Study

"Now, however, we are beginning to apply the techniques of method study, and more particularly of work measurement, to the problem of setting a reasonable task to which a reasonable wage can be attached. I am quite sure that the objective approach offered by these techniques must give a consistently fairer deal to employer and workmen alike, and, at the same time, ensure more efficient utilization of valuable machinery. I am glad to say that steady progress is being made in this direction, and in certain areas all power loading contract agreements are settled on the basis of method studies as a matter of course and with the willing co-operation of management and men. It seems to me significant that these are areas where men's earnings, their productivity, and the profitability of the pits are among the highest in the country.

"I hope I have said enough to show you that very great strides have been made in the last few years towards improving efficiency at the coalface, although much remains to be done. The percentage of output got by power-loading today is still only 28 per cent, and even with that 28 per cent, maximum efficiency is not yet achieved.

"I am convinced, however, that in the long term the demand will be for the smaller sizes of coal, and that this will inevitably favour the fullest possible development of mechanized mining".

Projects Gnome and Plowshare

UNDERGROUND application of atomic explosives is receiving increased attention in America. According to a report by the A.E.C., project Gnome is to investigate the possible underground use of uranium nuclear explosives for producing heat for power generation and for manufacturing useful isotopes. A panel of experts in seismology, geophysics, and ground water contamination has explored the likely results of detonation of a 10-kilo ton nuclear device 1,200 ft. underground, in the salt beds near Carlsbad, N.M., and has reported that no harmful effect to mineral or agricultural interests should result.

Since the Rainier underground atomic blast completed in Nevada last year, the feasibility of using atomic explosives to break up ore or oil-bearing formations has been recognized, and the A.E.C. has established project Plowshare to pursue such prospects, the next Plowshare test being scheduled for New Mexico next summer. At least one mining company has become interested and has placed a proposal before the A.E.C.

Information of interest to the mining industry should also result from the current series of underground nuclear weapons tests in Nevada.

Machinery and Equipment

New Jet Dredger for Mining

A new type of dredger was demonstrated by Acrow (Engineers) Ltd., on November 12, at St. Ives on the Great Ouse River. The use of high-powered jets for disturbing material to be dredged from under water, has been known for a considerable time in dredging work. The new Acrow Jet Dredger, however, combines this with a vacuum system also produced on a jet principle for extracting the material to be dredged and passing it to a point where it has to be dumped up to a distance of 1,000 ft. away. This principle eliminates the wear and tear on all the buckets, cutting blades and pumps through which normal dredged material has to be passed in the case of conventional buckets or suction dredgers. The saving this makes possible over the conventional type of dredger is of great importance to dredging work, and to alluvial mining interests and gravel pit operations.

The dredger can be further envisaged as mining beach sands from the sea, working in a Malayan tin paddock, or even winning opencast coal as a slurry under favourable conditions and if economic considerations allow for flooding prior to operations. The dredger is a remarkable step forward in dredging technique and is claimed to place Britain years ahead of the rest of the world in this particular field.

The dredger is specially designed to be broken down into parts which can easily be transported over land or by air, and this, together with its considerable operating depth at low operating cost and relatively low capital cost, makes it a very attractive machine for overseas work in inaccessible areas. There are no moving parts working under water. The dredging, including virgin ground, is achieved by powerful jets through nozzles, disintegrating the material in the immediate vicinity of the suction pipe. The sludge is then drawn through the pipe by a very powerful jet-created vacuum and there is a straight-through passage to the point of discharge; obstacles such as trees, roots, solid objects, vegetation and boulders will not stop dredging operations. It is highly efficient when operating in blue clay and sand. Stones up to 6 in. dia. can be dredged and all material entering the

suction pipe passes to delivery point without any interference of any kind. The dredger can be designed to operate at a depth of up to 100 ft. with normal delivery pipe sizes up to 12 in. dia., but larger plants can also be constructed to fulfil special conditions.

Above is the discharge pipe of the Acrow Jet Dredger shown to the Press and public last week at St. Ives on the Great Ouse River. Below, left, the dredger is seen, with spray jets and suction pipe in foreground. At right, below, the jet is in action

The power supply can be from mains, site power plants, diesel direct driven pumps and petrol direct driven pumps. The unit recently demonstrated was operated by its own built-in diesel electric plant. The dredger is designed to deliver at 1,000 ft. distance at 6-7 ft. elevation from the surface of the water. A range of four machines is now ready for production, the 12 in., 10 in., 8 in., and 6 in. Demag-Zug hoists are employed to lift the ladder and two Harland 6 in., centrifugal pumps are incorporated at a capacity of 1,000 gal. per min. each.

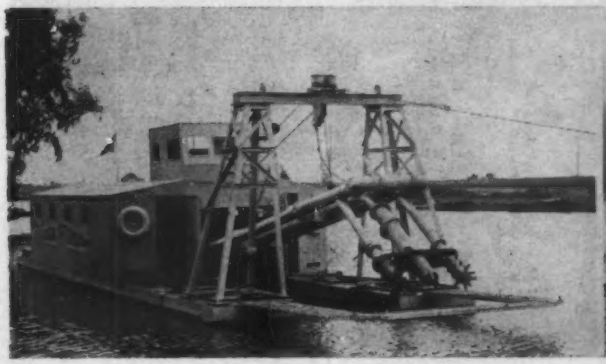
The dredged material is piped from the dredger to the nearest shore or loading point, and moved by any convenient method.

COAL MEASURES HANDICAP HIGH-SPEED SINKING

Ground conditions poor by comparison with those encountered in South Africa have placed severe limitations on the application of South African techniques to the Parkside Colliery sinkings described in *The Mining Journal*, October 31.

Restriction of the permissible length of exposed sidewall of 18 ft. imposed by the poor ground conditions means that all concreting operations must be conducted below the level of the bottom deck of the stage, which in turn means that sinking must be suspended during the locating and pouring of the curb ring, removal of temporary support and lowering and fixing of the remaining shuttering. Any delay in this phase of the operation must result in an overall delay. In stronger ground it would not be necessary to carry the lining nearly so close to the bottom and with the equipment available at Parkside, all concreting operations would be carried out within the confines of the working decks of the stage, thereby achieving wholly simultaneous sinking and lining with complete independence between the two.

At the same time, it has been clearly demonstrated that concreting operations can be safely conducted simultaneously with work on the bottom. Although not governed by legislation, the view has hitherto been held in this country that lining operations should not in the interests of safety be carried on with men at the shaft bottom. This view has persisted despite favourable experience in other parts the world where simultaneous sinking, lining, *and equipping* has been undertaken with remarkable success.



MINING MISCELLANY

An order for more than $700,000 for the design and manufacture of a conveyor system has been received by Hewitt-Robins Inc. The system will be installed at a new iron ore shipping terminal being built by Pan-American Commodities at San Juan, Peru, a Pacific Ocean port.

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The Pakistan Geological Survey team, which recently visited remote parts of Chitral, has discovered uranium deposits there. Chitral is rich in mineral resources like iron, copper and zinc, besides antimony.

★

A proposal for the exploitation of the rich iron ore deposits in the Sandur-Hospet hill ranges of Mysore by setting up a ferro-manganese plant in Bellary district is being examined by the Mysore Government. Mysore's chief minister, Mr. B. D. Jatti said it was essential that such a plant should be established as it would ensure the prosperity of not only the Bellary district or Mysore State but the whole of India.

★

Mr. S. Strauss, vice-president in charge of metal sales for the American Smelting and Refining Co., who is at present visiting Australia, predicted consumption increases of more than 20 per cent of copper, lead, and zinc, in the next five years. Mr. Strauss said that long-term chances for a more stable market for major base metals were better. Despite recent fluctuations, copper, lead and zinc had made quite satisfactory progress on a world basis. Mr. Strauss is in Australia to examine development progress at Mount Isa Mines Ltd., in which American Smelting and Refining is a major shareholder.

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An £85,000 plant for the manufacture of aluminium sulphate, used almost entirely for water purification by the bigger municipalities, and by mines which operate their own plants, is to be built at Msasa, near Salisbury, by African Explosives and Chemical Industries (Rhodesia) Ltd. The Central African Federation's present consumption of aluminium sulphate is about 2,500 tons a year, all of which has to be imported. The new plant would meet the Federation's needs and it might even provide a surplus for export, particularly to the Katanga province of the Belgian Congo. The raw materials needed are bauxite and sulphuric acid. The bauxite would come from the Eastern districts of Southern Rhodesia, and the sulphuric acid would be produced at the new plant.

★

Mr. B. D. Rampala, general manager of the Ceylon Government Railway, has asked the mechanical engineer to submit a report on the use of Chinese coal by the railway. This follows reports made by engine drivers that the coal they have obtained from China is of an inferior quality. The railway has indented for 75,000 tons of coal from China, and already China has supplied 45,000 tons. Before contracting with China, Ceylon used Indian coal which was found to be satisfactory. The contract with China is the result of the recent Ceylon-China trade agreement.

★

Twenty-eight seams of low ash and sulphur coking coal, with a total geological reserve of 1,700,000,000 tons, have been discovered recently in the Southern Donbas, Ukraine. The new coalfield is expected to be highly economical since it lies near a railway in direct proximity to the principal consumers, the great iron and steel works. Economists estimate that capital investment for its development will pay for itself in less than eight years.

★

New Zealand's Minister of Mines, Mr. F. Hackett, has revealed that Japanese steel interests have proposed joint New Zealand-Japanese exploitation of west coast of South Island coking coal. The proposals depend on the suitability of coal being proved, and on facilities for shipping being provided. Mr. Hackett said two trial shipments of coal totalling 4,700 tons would be loaded at the west coast bar-bound port of Greymouth. one on December 10, and the other later in the month. Representatives of the Japanese firms, Asahi Bussan Co. Ltd., and Mitsubishi Ltd., recently visited New Zealand in this connection.

★

The first part of the Alcoa Exploration Company's programme in the Dominican Republic, the building of harbour facilities at Enriquillo, and a road from the bauxite deposits at Las Mercedes and Aceitillar, has been completed. Work will be transferred from the Construction to the Mining Division of the company in December this year, when mining operations will be commenced. First shipments of bauxite are expected to take place in January, 1959.

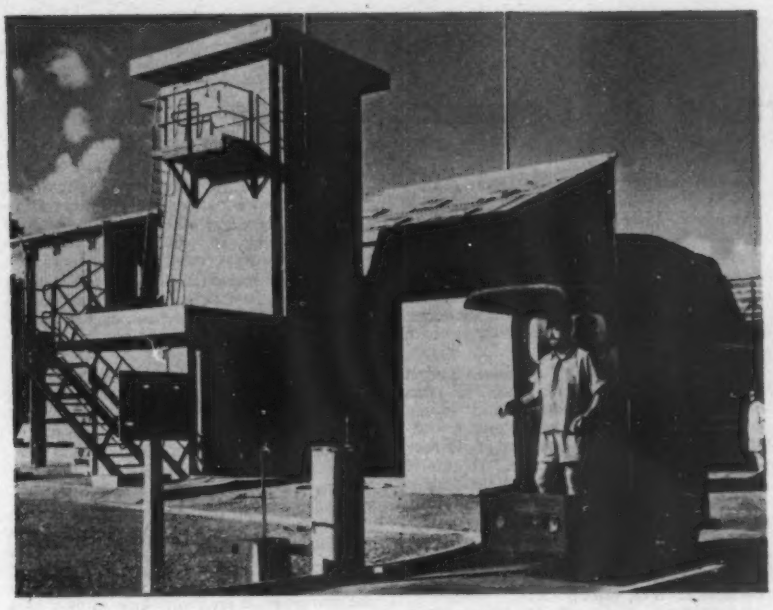
★

Development by Granduc Mines Ltd., of a copper mine prospect in northern British Columbia has been discontinued for the present. The company said an economic evaluation of the property had been completed to determine the advisability of bringing it into production. This included consideration of various methods of mining, means of access to the mine, different scales of operations and whether smelting would be done at the property or by custom smelters. Estimated capital expenditure for the various alternatives are also stated to be so high as to preclude, in the board's judgment, financing under satisfactory terms at the present time of the further development and equipment of the property.

★

The first stage in the operation of a new iron mine at Joda in Orissa, India, formally began with the inauguration of a 4,855-ft. ropeway to carry the ore from a 2,000-ft. high hill-top to a loading station beside the railway track. The inauguration of the ropeway marks only the beginning of the mechanization of mining, which India will have to effect if the second Five-Year Plan target of 12,000,000 tons of steel a year is to be achieved. The ropeway, rated to carry 300 tons of ore per hour, was put up in two years by an East German firm. By

The rapid progress that has been made in the development of the International Nickel Co. of Canada's properties in Manitoba into the world's second largest source of nickel supply is evident in this aerial view of a section of the Thompson Mine plant site area. In right centre, in an advanced state of construction, is steelwork for the concentrator. Rising to the right of the concentrator is the headframe for the mine's 2,100-ft. production shaft and behind it are three fine-ore bins. Towering over the smelter construction in the left background is a 500-ft. chimney, one of the tallest landmarks in western Canada. When completed in 1960, the mine will have an annual nickel production capacity of 75,000,000 lb. In 1961, Inco's combined annual nickel production capacity at its operations in the Sudbury District of Ontario and Manitoba will be 385,000,000 lb.



The new Indian Explosives Ltd. factory at Gomia, Bihar, opened on November 5, 1958, by Indian Explosives Ltd., a public company in which I.C.I. holds 80 per cent of the equity capital and the Government of India 20 per cent. The picture shows the talley mixing house in the danger area, with one of the battery-driven trucks used to transport explosives

next year this mine will be supplying Tata Steel at Jamshodpur with 500,000 tons of ore annually.

★

An investigation has been ordered by the Government of Victoria, Australia, into the uranium discovery which has been made at Lake Boga, south of Swan Hill. The Minister of Mines, Mr. W. Mibus, said that the find was the most promising uranium discovery yet made in Victoria, but much drilling would be needed to assess its value.

★

The largest swing hammermill ever to be designed and built in Britain has been ordered from the General Electric Co. Ltd., of England by the Quarry of Adelaide Cement Co. Ltd., of South Australia. Already under construction at the company's engineering works at Erith, Kent, it is a Dixie Non-Clog Hammermill, 72 in. in dia., and 60 in. wide, and weighing 70 tons. The main driving motor of 650 h.p. is being supplied by the G.E.C.'s electrical engineering works at Witton, Birmingham.

★

General recommendations for the sampling of mananese ore, British Standard, 3035: 1958, are based on the work of Technical Committee 65 "Manganese ore" of the International Organization for Standardization, and are almost identical with the general agreement reached at the ISO meeting in Leningrad in August, 1956. The 10-page publication relates to the sampling of manganese ore in freight wagons immediately before the ore is loaded into the ship, or immediately after discharge at the port of arrival. It is applicable to all manganese ores.

★

A group of international experts, who have been working during the past two weeks at the International Labour Office, have now completed an "International Classification of Persistent Radiological Opacities in the Lung Fields Provoked by the Inhalation of Mineral Dust". This represents one aspect of the International Labour Organization's battle over several years against pneumoconiosis. The importance of early diagnosis in achieving prevention was recognized by all the experts, and one of the aims of the classification is to facilitate the early diagnosis of the disease before the health of the worker is affected or his future jeopardized.

★

One of the most colourful chapters in Southern Rhodesia's gold mining history came to a close in November, when the last ounce of gold was produced at the Sun Yat Sen Mine, renowned for the exceptional richness of its ores. During its 27 years of life, the mine produced nearly 94,000 oz. of gold worth approximately £1,000,000. In recent years the ownership changed hands several times. Now the mining gear is being prepared for sale. A sample of the richest ore has been presented to the National Museum, where it is now on show as the prize exhibit in the minerals section.

PERSONAL

Mr. E. J. Mejia, a director and vice-president of Aluminium Ltd., has been appointed to succeed Mr. E. G. MacDowell as chief sales management officer. Mr. MacDowell is retiring from this post but will remain as director and vice-president. In accepting his new appointment Mr. Mejia is retiring as chief employee relations officer.

★

Mr. R. F. Legget, M.Eng., M.I.C.E., director of the National Research Council, Division of Building Research, Canada, has flown to London for the discussion of his paper on "Soil Engineering at Steep Rock Iron Mines, Ontario, Canada", which was presented at a general meeting at the Institution of Civil Engineers. Mr. Legget is a former member of the Council of the Institution of Civil Engineers.

★

The death is announced, after a short illness, of Mr. R. Stagg, M.I.Struct.E., deputy chairman of Thos. W. Ward Ltd., Albion Works, Sheffield.

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Mr. H. N. Adams has been appointed to succeed the late Mr. W. N. McCann as branch manager of Silvertown Rubber Co. Ltd., Manchester.

★

Mr. C. A. J. Martin is relinquishing his position as general sales manager, Plant Division, Crompton Parkinson, to become executive director of the same firm.

CONFERENCES AND EXHIBITIONS

The South Wales Institute of Engineers is to meet on January 8, 1959, in Cardiff at 6 p.m., to hear a lecture on "The collection, transmission, and utilization of Methane from Collieries in the Afan Valley", to be given by Mr. S. L. Wright, B.Sc., M.Inst.GasE., Mr. W. T. Hird, M.B.E., M.Inst.GasE., and Br. G. H. Thomas, B.Sc.

★

The 21st session of the International Geological Congress will be held in "Norden" in 1960. Correspondence should be addressed to the general secretary (Theodor Sorgenfrei), XXI Session International Geological Congress, Mineralogisk Museum, Oster Voldgade 7, Copenhagen K, Denmark.

★

At a meeting of the South Wales Institute of Engineers to be held at Cardiff on December 11, 1958, at 6 p.m., a lecture on "Strata Bolting in the South Wales Coalfield", will be given by Mr. G. C. Sen, M.Sc., A.I.Min.E.

★

A conference of leading social and economic workers of the coal industry, devoted to an evaluation of the situation in coal mining, and to a discussion of the tasks for 1959, was held in Katowice, Poland at the end of October. The production plan for the first nine months of this year has been fulfilled with a surplus of 990,000 tons of coal. There are, however, still many deficiencies in the coal mining industry. The management of the individual mines, it was felt, should be analysed in detail, and the unrevealed production possibilities disclosed.

COMPANY EVENTS

As from November 24, 1958, the London District office of the British Thomson-Houston Co. Ltd., will be located at 33 Grosvenor Place, London, S.W.1. The new telephone number is Belgravia 7011.

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The new address of Metropolitan-Vickers London offices will be 33 Grosvenor Place, London, S.W.1. The new telephone number is Belgravia 7011.

★

British Insulated Callender's Cables Ltd., have prepared a mobile display unit which is being taken on a tour of various Continental countries. The idea is to extend the use of BICC Mineral Insulated cables by electrical engineers in Europe. The unit, which is contained in a Humber Hawk estate car, comprises a number of panels, showing a comprehensive range of mineral insulated cables, accessories, and tools.

Technical Briefs

Concentration of Uranium Minerals

According to the ninth annual report of the C.S.I.R.O., Australia, for the year 1956-1957, there has been an expanding interest in the concentration of minerals from beach sands. The high price of rutile brought many new areas into production, whilst the recovery of ilmenite from Western Australian deposits became commercially established. Investigation has also shown that flotation is promising as a means of recovering rutile from ore.

It has now become clear that the future of the smaller and more remote uranium orebodies will depend increasingly on concentration, since there are significant tonnages of ore which cannot properly be transported to treatment plants. A somewhat similar situation may exist in certain deposits of the United States, as at the C.O.G. Minerals Corporation's mill in the White Canyon district, Utah, a low grade ore is being treated economically. It is unusual, however, to find either gravity or flotation employed to any appreciable extent in uranium metallurgy; consequently such a plant may be of more than passing interest.

Concentration of Uranium Ores (C.O.G. Minerals Corporation mill, by F. A. Seeton and J. E. Quinn, Bulletin M 4-B97, Denver Equipment Co.) adds that in the course of marketing ore under A.E.C. Circular 5, which demanded ore containing a minimum of 0.2 per cent U_3O_8, a stockpile of lower grade material accumulated. Test work was undertaken on samples ranging from 0.09 per cent to 0.16 per cent U_3O_8, when it was shown that it was possible to make a gravity concentrate of the uranite and other minerals, whilst flotation recovered the sulphide copper minerals with which some uranium was associated.

It was not found possible to separate the uranium from the copper minerals, however, and the slime fraction of the final tailing was uranium-rich; so a flowsheet was devised involving rod mill grinding to—6-mesh, followed by a Denver jig and scavenging in Humphreys spirals.

The concentrate is treated and re-cleaned on a table, making a final concentrate containing 4.2 per cent U_3O_8 and 17.4 per cent Cu. Spiral tailing passes to flotation where a concentrate containing 0.3 per cent U_3O_8 and 22.0 per cent Cu. is made and the final tailing deslimed in a rake classifier. Thereafter the cyclone is passed to cyclones to separate some sand for re-circulation to the gravity plant and the overflow flocculated with sulphuric acid and separan, thickened and pond dried. This contains 0.29 per cent U_3O_8 so that in all, no less than 93 per cent of the uranium is recovered in a saleable form, 46.6 per cent being as the 4.2 per cent gravity concentrate.

HIGH TENSION SEPARATION

In the investigation *High Tension Separation of Salt-Coated Beach Sands* by S. B. Hudson, O.D. Investigations Report 549, Melbourne, it was shown that a sample of beach sand gravity concentrate which had been tabled in salt water failed to separate on a high tension separator unless washed in fresh water or heated and kept at above 70 deg. during the treatment.

Provided it was kept hot throughout the treatment, washing was not necessary to obtain a high grade rutile with good recovery.

In another report by Hudson, Report 550, C.S.I.R.O., Melbourne, it was shown that saleable rutile and zircon concentrates could not be obtained without attrition cleaning because of surface coating on the zircon grains. Water is adequate as the medium, and no benefit was obtained when using acid or caustic soda solutions.

SELECTIVE CRUSHING OF FRENCH WO, ORES

In an abstract of a series of articles published recently in *Annales Des Mines*, Pierre Seyer describes how French tungsten ores are concentrated by gravity with a high degree of efficiency.

The key steps in the dressing are selective crushing, using impact crushers, desliming, scalping in jigs, and gravity concentration after close screening and classification. In some instances a roughing step using spirals precedes sizing and tabling, whilst Buckman tilting tables are used on two mines for dealing with the extremely fine fractions. Associated pyrite is removed by means of table flotation and froth flotation. (Incidentally, the table flotation is said to have been evolved at Panasqueira mine, but in point of fact it was developed in Cornwall at the Camborne School of Mines and introduced into Panasqueira later.)

All gravity concentrates are treated in magnetic separators to remove metallic iron and the wolfram is also removed by high intensity separators. Any scheelite is recovered by gravity from the non-magnetic fraction, whilst at Montims, cassiterite is recovered from this product.

NEW ZINC PROCESS

A new, continuous process to produce zinc as a thin foil has been developed by the American Smelting and Refining Co. at its central research laboratory, New Jersey. A pilot plant unit is now turning out developmental quantities of the foil in sheets ranging from 0.005 to 0.001 in. in thickness and 26 in. in width.

By the new process, zinc is deposited electrolytically from a zinc sulphate bath on to a revolving drum. The foil is stripped from the drum in a continuous sheet of uniform thickness. This electrolytic process, said to be more economical than the older, conventional metal rolling techniques, produces foil of high chemical purity and with unique ductility and tensile strength.

Asarco, long a major producer of slab zinc, expects that the foil will find a market in certain electrical applications. As a moisture barrier in insulating compositions, the zinc foil has the advantage of adhering to bitumastic materials better than most metallic foils.

The new foil will sell at a lower price per square foot than copper foils. When in commercial production, it will probably be cheaper than comparable aluminium foil.

Asarco is now contemplating the installation of a larger scale pilot unit at its Corpus Christi, Texas, plant.

TIN-COATING CAST IRON

A new process for tinning cast iron has been developed in the laboratories of the Tin Research Institute. Cast iron is a rather difficult material to tin because of its graphite content, and in the past somewhat complicated processes have been used for this purpose. Moreover, the results achieved have not always been satisfactory. The new process, which is called the Direct Chloride process, is said to provide an uncomplicated solution to this problem.

Its operation depends on preparing the castings by blasting with very fine grit coupled with the use of a special, but inexpensive, tinning flux. The process may be used for tinning articles such as food-handling equipment, where a smooth hygienic coating is the first consideration. It can also be used for tinning cast iron bearing shells where a strong bond is the essential quality desired. Several companies in the United Kingdom and abroad are now using the process, which is said to be yielding satisfactory results.

DIFFICULT RECOVERY PROCESSES

Valuable ores in the Washington mountains, United States, whose recovery has presented a challenge to engineers and metallurgists for years, may yet surrender to modern methods and processes.

The mountains are the Sisters, located in the foothills of the Cascades. They contain large deposits of high grade dunite or olivine composed of magnesium oxide and silicone dioxide with a trace of iron, aluminium, and calcium. Difficulty of recovery has been a challenge for years.

The thirty-eighth annual meeting of the American Institute of Chemical Engineers, meeting in San Francisco recently, heard two experts describe a method of direct chlorination at a high temperature which may solve the problem.

Laboratory experiments were described by Kermit B. Bengston, Kaiser Aluminum and Chemical Corporation, and L. N. Johanson, of the University of Washington.

The speakers said fifty-seven experimental runs were made, using a quartz chlorinator, at approximately one atmosphere pressure at temperatures between 900 deg. and 1,320 deg. C.

Metals and Minerals

The Tariff Commission Reports On Tungsten

The U.S. Tariff Commission has published the report on tungsten ores and concentrates, which was requested by the Senate Finance Committee in March. The public hearings were held in July. No changes have been recommended in the U.S. duty on tungsten ore and concentrates, which is currently 50 c. per lb. It is possible, however, that the report might lead to Congressional or other demands for changes in the tariff.

The report, which is a 67-page factual study, discusses the production, exports, imports and consumption of tungsten ore and concentrates in the U.S., as well as the Federal Government's procurement of foreign and U.S.-produced tungsten under long-term contracts negotiated during the Korean war.

Government purchases of offshore tungsten for the U.S. national stockpile of strategic materials halted in February, 1953. The Commission notes, however, that, as of September 30, 1958, the government was committed to purchase 166,291 additional short ton units of tungsten trioxide from foreign producers under various contracts, the last of which will terminate during the fiscal year 1962. In general, however, deliveries of foreign tungsten ore and concentrates terminated in the latter part of 1956.

Attention is drawn to the major expansion in world production during the past eight years (1950-57). Total world output in both 1955 and 1956 was about 38,750 s.tons (tungsten content), or nearly double the production in 1950 (20,150 s.tons), or the average annual output in 1937-39 (20,400 s.tons). In 1957, world production decreased to 34,350 s.tons, reflecting declining world prices and demand.

On the subject of imports, the Commission said that in recent years these had been the largest on record, but large amounts had moved in duty-free for U.S. Government use. In the first six months of 1958, duty-free imports accounted for about 93 per cent of the total imports.

In the first half of 1958, imports amounted to 2,100 s.tons. If they continue during the remainder of 1958 at a rate no higher than prevailed during the first half of the year, the annual total will be slightly more than half as large as in 1957.

Commercial imports were equivalent to 56 per cent of U.S. consumption in 1957, but only 12 per cent in the first half of 1958.

The Commission said it had sought, but was not successful in obtaining, adequate or representative costs of producing tungsten ore and concentrates in foreign countries, despite the fact that it had requested such information from producers in Argentina, Australia, the Belgian Congo, Bolivia, Brazil, Canada, Korea, Peru, Portugal and Spain.

It is stated that producers in Argentina, the Belgian Congo, Portugal and Spain either refused or failed to supply information on production costs. Certain cost information was obtained, however, from one mine in each of the following countries: Australia, Brazil, Canada, and Peru. These cost data, most of which are incomplete in important respects, cannot be published without revealing the operations of individual concerns. Cost figures obtained for Bolivian and Korean mines were not usable. The data for Korean operations, for example, were based on estimates rather than costs.

On the whole, it can be said that the results of this painstaking enquiry add little to our knowledge of the tungsten industry or the position in the U.S., though study of the full document—when it becomes available in this country—may add some details to our background knowledge. It is now widely recognized that the prolonged slide in tungsten prices was set off by the suspension of the U.S. Government's purchasing and stockpiling programmes, which had insulated tungsten from the normal interactions of supply and demand. The tungsten purchasing programme, which was put into effect in 1950, increased the largely uneconomic domestic production within two years by 50 per cent, while at the same time imports of tungsten quadrupled.

Now that the tungsten industry is at last showing signs of recovering from this overdose of government assistance, we can but hope that it will be left alone to work out its economic salvation without the uncertainties which would be created by Congressional demands for tariff changes.

The absence from the Commission's report of any recommendation on tariffs might almost be likened, at any rate on first thoughts, to the silence of the dog in the detective story, which — as all followers of Sherlock Holmes are aware —was a highly significant clue.

Meanwhile, wolfram continues its upward climb and at the time of writing is quoted at 85s.-90s. as compared with 65s.-70s. a ..onth ago. In the U.S. tungsten ore, foreign, is now quoted at $10.00-$10.50 per s.ton unit c.i.f. U.S. ports. The previous quotation was $8.35-$8.50.

BAUXITE FOR U.S. STOCKPILE

The General Services Administration of the U.S. Government announced some time ago that between 600,000 and 800,000 tons of bauxite would be stockpiled at Mobile during the next two years. It was further stated that the plan might later be expanded to a total of 1,000,000-2,000,000 tons. Alcoa and Phillips Bros. of New York have contracted with G.S.A. to bring ore for stockpiling to Mobile from South African mines. The first of a series of regular weekly shipments was expected to reach Mobile on November 17.

The Surinam Aluminium Co. plans to increase its bauxite production by 50,000 tons a month. Most of the increase is expected to go to the U.S. for stockpiling and will not be used for aluminium production.

*

It is expected that the West German duty-free import quota of 40,000 tons of aluminium a year will be maintained during 1959, and that a motion to this effect will shortly be submitted to Parliament. West German aluminium producers have been pressing for the abolition of the quota, but the processing industry contends that domestic production is not enough to meet all requirements. If the quota disappeared, a uniform 7 per cent import duty would be levied on all aluminium imports.

*

Yugoslavia's main aluminium and clay factory, situated at Kidricevo, Slovenia, is to double its production as the result of reconstruction to be carried out shortly with assistance from French industry. The works will produce 40,000 tonnes of aluminium and 90,000 tonnes of clay annually, instead of 20,000 tonnes of aluminium and 45,000 tonnes of clay as hitherto.

QUICKSILVER DISPUTE SETTLED

The wage disputes between three Italian quicksilver mining companies and the miners' trade unions (referred to in our issue of last week) has been settled by the intervention of the Premier, as a result of which the firms agreed to re-establish the men's former wage conditions. The mines had been idle since September 22.

The rumours concerning the removal of the manufacturing tax on quicksilver have been officially denied by the Italian Ministry of Finance.

PLATINUM IN DOLDRUMS

The free platinum market in the U.K. remains in the doldrums, prices being now indicated at £18 10s.-£19 10s. per troy oz. — a fall of 5s. from previous levels. Buying interest remains at an extremely low ebb and there are no signs of a revival in industrial demand. The strike at International Nickel, which has been on since September 24, does not appear to have stimulated any buying, possibly because of the availability of Russian metal.

In New York pure refined platinum is currently quoted at $53-$60 per f.oz., following some offerings of the metal by outside market dealers at as little as $53. Primary sellers adhere to their officially published asking prices of $57 in bulk and $60 in smaller quantities. There still appears to be no improvement in demand or consumption and the trade remains nervous under the influence of overhanging Russian offerings.

It was recently reported that the U.S.S.R. had become the main supplier of platinum and platinum metals to West Germany. From January 1 to August 31 this year West Germany imported 3,563,000 gm. of platinum and

platinum metals, including alloys, against 2,396,000 in the same period last year. Of this year's imports, 1,940,000 gm. came from the Soviet Union against 465,000 gm. in the first eight months of 1957.

Nevertheless, there is a growing feeling in some quarters that the metal has turned the price corner. In support of this more optimistic sentiment it is pointed out that more platinum should be consumed in the U.S. as the economy climbs out of the recession, and that increased industrial activity in the Soviet Union could stem the flow of exports to the West.

COPPER · TIN · LEAD · ZINC

(From Our London Metal Exchange Correspondent)

The market during the past week has been irregular and the uncertain tone has brought about limited price movements in all metals. Copper has been influenced by the publication of the October statistics whilst confirmation has come from Washington that tin, lead and zinc will feature in a renewed barter programme.

COPPER STOCKS DECLINE

Copper values eased at the end of last week with cash metal at £238 and three months at £234 10s., compared to the recent peak of £260, and £247 10s. respectively. Previous to this there had been no reaction following the settlement of the Rhodesian strike, and the announcement of the relaxation of U.S. export controls, referred to last week, gave the movement added impetus. When business was resumed after the week-end, the copper statistics for October were known and the market recovered sharply. But disappointments at the lack of response on the part of consumers to the statistics has resulted in the best levels not being maintained.

A further narrowing in the backwardation in London has taken place as a result of a small rise of 117 tons in stocks in U.K. official warehouses, thereby reversing the consistently downward trend of recent weeks. There is also the knowledge that shipments of metal already afloat from the U.S. are available to meet, not only present commitments, but also any shortage which might develop in the coming months.

Customs smelters report demand quiet at 30 c. whilst the main producers who are selling at 29 c. find sales satisfactory and, indeed, they could sell more if they had more metal available. It is of interest that for the second time this year the U.S. has become a net exporter of copper. This can be attributed in part to the reimposition of the 1.7 c. import duty on foreign material and also to the higher prices ruling in overseas markets. The August figures show imports at 27,739 tons against exports of 41,524 tons.

The October statistics show that world stocks have declined 106,005 tons and now stand at just over 268,000 tons. This is little more than a month's supply, based on the average shipment of approximately 240,000 tons a month for the first 10 months of this year. Of the total decline the U.S. was responsible for 50,000 tons, reflecting better buying by consumers, and the situation created by the major strikes in progress during the month. It is estimated that the shutdowns in Northern Rhodesia, Canada and the U.S. have caused the loss of about 85,000 tons of metal and although the strikes in the U.S. and Rhodesia have been settled, there are no indications of a settlement being reached in Canada.

The major part of the U.S. figure can be put down to shipments overseas, as deliveries to domestic consumers exceeded production by only some 10,000 tons. U.S. producer stocks at 128,490 tons are the lowest for any month since January, 1957, and nearly half the figure at the end of May this year. It remains to be seen whether the overall picture presented by these statistics indicates a real improvement in consumption and how much inventory buying. The detailed figures are:

United States	*Oct. 1958*	*Sept. 1958*
Shipments ...	121,692	101,064
Production-total ...	111,874	86,800
From mines ...	92,140	79,541
From scrap intake	19,734	7,259
Refined production	113,288	107,971
Stocks of refined on hand ...	128,490	178,222

Foreign	*Oct. 1958*	*Sept. 1958*
Shipments ...	171,687	153,603
Production-total ...	112,856	123,879
From mines ...	112,108	123,178
From scrap intake	748	701
Refined Production	78,791	96,035
Stocks of refined on hand ...	140,285	196,558

TIN AND THE BARTER SCHEME

The tin market still awaits detailed news as to the extent to which the metal will participate in the renewed barter programme. Present statistics make it clear that there is no free tin available beyond day-to-day requirements, and attention therefore is focused on the metal purchased by the International Tin Council's special fund. There is no obstacle in the way of the U.S. Government purchasing this material, and no doubt the buffer stock would be glad to turn some of their holding into cash although, as far as their main stock is concerned, this cannot be done below a market price of £780.

Tin shipments from Singapore in the first half of November amounted to only 41 tons compared with 232 tons for the first half of last month. From Penang comparative shipments were 1,320 tons and 1,254 tons. In neither case was any metal shipped to the U.K. Stocks in official L.M.E. warehouses last week declined 139 tons to 17,282 tons.

The Eastern price on Thursday morning was equivalent to £787½ per ton c.i.f. Europe.

DISAPPOINTING OUTCOME OF GENEVA CONFERENCE

The lead and zinc markets were inclined lower at the end of last week with the disappointing outcome of the Geneva conference, but they staged a mild rally on U.S. barter developments. In Geneva the 30-nation conference on these metals decided to set up an international study group to consider ways and means of meeting the present difficulties affecting the trade, and to examine the possibility of establishing some sort of short-term agreement. It was agreed that the general situation should be kept under review but the feeling is that nothing concrete will result from this meeting. The U.S. delegates made it clear that the present import restrictions into the U.S. would be continued until the market situation warrants their withdrawal. Meanwhile, it has been announced that the import quota for zinc allocated to other countries for the last quarter of this year was filled by entries up to and including November 13.

Demand for zinc has not been so brisk recently whilst lead has been quiet. U.S. lead and zinc mine production for September at 19,123 tons and 29,865 tons respectively showed little change from the August figures. In the case of lead the September total was 15 per cent below the average monthly rate for this year.

U.K. NON-FERROUS STATISTICS

Figures were published during the week by the British Bureau of Non-Ferrous Metals for the month of September. In the case of copper the off-take in all forms totalled 61,408 tons compared with 42,181 tons in August with stocks of refined metal in the United Kingdom at the end of September at 85,092 tons showing a reduction against August's figure of 89,899 tons. Lead consumption totalled 28,829 tons against August's figure of 21,726 tons with stocks of refined metal at the end of September 48,865 tons against 43,758 tons at the end of August. The zinc figures were 26,747 tons and 19,076 tons respectively whilst stocks of slab-zinc declined from 49,590 tons at the end of August to 45,784 tons at the end of September. Refined tin usage in September was also higher at 1,784 tons compared with 1,412 tons for August.

Closing prices are as follows:

	Nov. 13 *Buyers*	*Sellers*	Nov. 20 *Buyers*	*Sellers*
COPPER				
Cash	£243	£243½	£239½	£240
Three months ..	£237	£237½	£237½	£237½
Settlement ..	£243½		£240	
Week's turnover	12,450 tons		11,825 tons	
LEAD				
Current ½ month	£75	£75½	£77	£77½
Three months ..	£76	£76½	£77	£77½
Week's turnover	9,175 tons		7,725 tons	
TIN				
Cash	£756	£756½	£761½	£762
Three months ..	£758	£758½	£765	£765½
Settlement ..	£756½		£762	
Week's turnover	1,355 tons		1,095 tons	
ZINC				
Current ½ month	£75½	£75½	£77½	£77½
Three months ..	£72½	£72½	£74½	£75
Week's turnover	7,300 tons		9,375 tons	

London Metal and Ore Prices appear on page 580.

Mining Finance

Operating Results on the Copperbelt

Tabulated alongside are the operating results of the six major mines of the Copperbelt for the 1958 financial year, together with the previous year's figures for comparison.

The first, and most important, thing to note about this summary is that the results are now of no more than historic interest. It is now certain that the nadir of the depression in the copper price was passed in the first half of this year, and profits based on a price of £180-90 have little relevance for the near future, at any rate.

What is interesting is the way in which shareholders have been cushioned against the full effects of the fall in revenue. An examination of the table will show that net profits of all the established mines except Rhokana (an exception because a large proportion of this mine's income is from investments in other companies) have fallen by about half the decline in sales revenue. The balance is accounted for by the reduced level of appropriations—taxation, depreciation, and reserve transfers. Without this force for stability, the dividends declared during the year, drastically cut though they were, might have been smaller still—indeed, had it not been for the recovery in the metal price which began in the second quarter of this year, there might well have been no final dividends at all.

OPERATING RESULTS OF COPPERBELT COMPANIES

Company	*Year to June 30*	*Copper Sales* (£000)	*Depreciation* (£000)	*Taxation* (£000)	*Net Profit after Tax* (£000)	*Transfers to Reserve* (£000)	*Net Divs. per ord. share* s. d.
R.S.T.							
R. Antelope	1957	21,241	1,250	2,945	4,216	1,198	0 11¼
	1958	13,682	650	870	1,452	675	0 3¼
Mufulira	1957	24,898	1,500	4,142	6,092	1,386	6 1
	1958	16,716	750	1,430	2,720	1,250	2 0¼
Chibuluma	1957	4,045	400	—	1,396	1,395	—
	1958	4,813	200	—	1,151	1,150	—
Rhoanglo							
Nchanga	1957*	30,369	1,074	5,700	9,529	2,500	20 0
	1958*	23,605	1,195	2,475	4,370	1,000	10 0
Rhokana	1957	24,164	479	2,900	15,936	4,155	45 0
	1958	18,187‡	488	1,100	4,259	1,406	25 0
Bancroft	1957†	204	—	—	L1,255	—	—
	1958	3,673	—	—	L1,682	—	—

* Year to March 31. † 6 months only. ‡ After payment of £271,600 (Rhokana), £390,933 (Nchanga) to Bancroft. L Loss.

The future, however, is a different matter. With copper, as with most metals, there are, in fact, two futures: the near-term and the long-term. The immediate future was discussed here on October 31, and little has happened since that date to vitiate the conclusion then reached. Copper shares continue to stand at a level discounting a metal price of perhaps £270 per ton, and as long as the share prices are influenced by the day-to-day progress of the L.M.E. quotation, investors will always be defenceless against the effects of a temporary decline (or, indeed, a halt in the rate of increase) in the metal price. Let it be once more repeated that for a Copperbelt share to move as a result of a fluctuation on the L.M.E. (which may well be due to, say, the elimination of a bear position) is of the same character as picking the champion at Crufts to win the greyhound derby.

Quite different, however, is the long-term picture. As long as the living standard of the Free World continues to improve, consumption of copper will increase with it. There are two qualifications to this statement, however. Many of the properties of copper are shared by other metals to a greater or lesser degree, and there are, therefore, a considerable number of marginal markets in which substitution will take place at a comparatively low price level, or, alternatively, if the consumer has no guarantee of continuity of supply. On the other side of the coin, it is essential that the metal price should be high enough not only for the producers to make an equitable profit, but also to ensure that new sources of ore are coming into sight and being developed at a rate sufficient to replace reserves as they are depleted.

There are, therefore, two opposite pressures working on the metal price, and according to Sir Ronald Prain and Mr. H. Oppenheimer last year, equilibrium was reached at about £240 per ton. The situation is somewhat obscured by the effects of the recently ended strike on the Copperbelt, and that still continuing in Canada, which complicates any attempt to estimate the true degree to which the copper price has recovered.

If this equilibrium can be reached and held (and certainly present signs are favourable) there can be no doubt but that the Rhodesian copper industry will continue to expand, and by virtue of this fact alone Copperbelt shares are worth

LONDON MARKET HIGHLIGHTS

South African Gold shares during the past week presented a very healthy appearance indeed. Prices advanced steadily throughout the list on a genuine investment demand.

Gold shares are now being bought on investment merits. A good example during the week was the steady advance in East Rand Proprietary to 46s. 3d. following news of the latest expansion programme at this "long-life" mine and consideration of the high yield basis of the shares.

Most of the buying elsewhere seemed to come from the Cape and it was thought that much of it stemmed originally from the U.S. This was particularly true in St. Helena which jumped to an eight-year high of 48s. "Ofsits" (79s. 6d.) responded to further Continental demand resulting from their recent quotation on Swiss Stock Exchanges and among many other gains West Witwatersrand were outstanding at 53s.

Even Hartebeest (64s. 9d.) began to recover from the setback that preceded the relatively disappointing values encountered in the new No. 3 shaft. Dealings began in the reconstituted Loraine shares which represent the merger with Riebeeck; the shares started at 18s. 9d. and soon moved up to 20s. 3d. One dull spot was in Zandpan which eased to 6s. 3d. premium when the initial enthusiasm for this new quotation had worn off.

Finance House shares moved ahead with the rest of the market. Johannesburg Consolidated were particularly helped by the chairman's reassurance that the reduced dividend rate would be maintained. Anglo American strengthened to 170s.

In diamonds, "Casts" responded further to the higher profits and distributions, reaching 19s. when the report made its appearance. De Beers moved up to 120s. 7½d. on further consideration of the improvement in U.S. business activity.

Copper shares were again reluctant to move very much either up or down. The daily fluctuations — sometimes quite sharp — in the metal price were disregarded. Even the Rhodesian Selection Trust group quarterlies had little effect. The encouraging recovery in R.S.T. group profits during the September quarter must have been largely offset by the loss of earnings in the current three months as a result of the seven-week Copperbelt strike. One firm exception to the general lethargic tendency was provided by Rhodesia-Katanga. Always a speculative stock, "Rho-Kats" quickly moved ahead when Mr. Harry Oppenheimer told of hopes to re-open the Kansanshi mine in his statement accompanying the annual report of Rhodesian Anglo American. Enthusiasm about the anticipated eventual re-opening of Bancroft, however, was tempered by consideration of the heavy accumulated loss of around £3,000,000 in the latest accounts and consideration of the mine's heavy capital structure.

On Thursday the Bank Rate was cut by ½ per cent to 4 per cent.

holding for long-term income and growth. Whether current quotations are realistic, however, is quite another matter.

GOLD FIELDS' GOOD FINANCES

The Consolidated Gold Fields' accounts for the year to June 30 last reflect the fresh capital raising that took place in July, 1957. They also show that holders of the 6 per cent Loan stock have not been slow to take advantage of the current conversion right into £1 Ordinary shares at 50s. No less than £714,026 of the £1,958,404 Loan had been so converted in time to qualify for the final dividend of 3s. 6d. a share which will thus be payable on 6,160,607 shares against only 5,875,212 shares a year previously when the final was 3s. This means that the higher 1957-58 total payment of 4s. 6d. a share out of lower profits—as announced last month—requires £789,540 net against £647,497 in the preceding year which, in turn, means that the payment is now covered only twice by consolidated net earnings compared with over three times in the case of the 1956-57 distribution of 4s.

The directors, in other words, have been more generous this time and their gesture will no doubt be interpreted as a sign of confidence in the future. The fresh funds raised will, of course, have played their part in this more liberal policy, having considerably improved the company's liquid position. Allowing for the fact that quoted investments standing in the balance sheet at £12,777,641 had a market value on June 30 of £23,607,325, Gold Fields' net asset value comes out at around 90s. per Ordinary share which stand at 63s. in the market to give, in addition, the quite good yield of 7.1 per cent on the 1957-58 payment.

A look through the group's interests as set out in the report shows that there must be some setback this year in dividend revenue from the base metal holdings and also, at the moment, the complete absence of income from the stake in South African platinum. But the rising gold share market should be giving opportunities for swelling profits from "realization of investments". In these circumstances, it is likely that at the meeting on December 11 Mr. Robert Annan will be confident enough about maintaining the higher dividend in 1958-59

"JOHNNIES" FORECAST

Dealers in the £1 shares of Johannesburg Consolidated, another leading Kaffir finance house, naturally seized upon the dividend forecast as being the most vital point in Mr. D. A. B. Watson's lengthy speech at this week's meeting in Johannesburg. After foreshadowing "some reduction" in the net profit for the current year to June 30 next, Mr. Watson said that unless any unforeseen depreciation in the book value of the company's investments occurred the Board expected that it would be possible to maintain the dividend at the reduced 4s. 6d. rate declared for 1957-58.

This had the effect of banishing a certain amount of nervousness that "Johnnies" might have to make a further cut in its distribution owing to lower revenue from base metals and, also, as with Gold Fields, to the temporary absence from the dividend list of Rustenburg Platinum Mines. As regards depreciation of investments, Freddies Consolidated, the unsuccessful O.F.S. gold and uranium producer, remains a black spot, but the holding of 7,456,000 £1 shares in this concern has already been written down in "Johnnies" books to 3s. a share against the current market price of 2s. 6d. Despite this the overall market value of "Johnnies" investments has appreciated since June 30 last. Mr. Watson, incidentally, was unable to describe the outlook for Freddies as anything better than "uncertain".

Another point of interest at the meeting was the announcement that exploitation of the potential gold mine known as the Western Areas Prospect, situated to the south of Randfontein and east of Venterspost and Libanon, was still being deferred for the time being, although remaining under review by the Board. Free State Development and Investment Corporation has a 20 per cent stake in this venture and its 5s. shares have had some bouts of speculative strength recently on rumours that the Western Areas Prospect was going to be proceeded with. They stand at the moment at 7s., exactly double their price earlier this year.

"CASTS" DOING WELL

Mr. A. Chester Beatty, chairman of Consolidated African Selection Trust, the Ghana and Sierra Leone diamond producer, is also in a forecasting mood in his statement accompanying the annual report for the year to June 30 last. He says that providing there is no serious deterioration in the security position in the Sierra Leone lease areas trading results for the current financial year are expected to be no less favourable than those for the past year. This is reassuring indeed in view of the setback that has taken place in world diamond sales from the previous record levels and particularly in view of the fall in the sales of industrial stones. It is believed that this variety makes up some 70 per cent of "Casts'" output. (Page 579.)

The report is shy of giving any details of production, but Mr. Beatty says that Ghana results showed a 10 per cent increase in yardage treated last year at a slightly improved overall grade while in Sierra Leone there was no less than a 25 per cent rise in yardage, also with a slight increase in grade. In other words, higher output accounts for the advance in "Casts'" profit which rather took the market by surprise when first announced earlier this month.

"Casts" is obtaining tax benefits from the Overseas Trade Corporation concessions and is also effecting some saving through the last U.K. budget's simplification of profits tax. The 5s. shares stand at 18s. 9d. cum the final dividend of 1s. 9d. gross and the special interim of

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DOMINION REEFS (KLERKSDORP) LTD.

MR. M. E. RICH'S REVIEW

The twenty-third annual general meeting of Dominion Reefs (Klerksdorp) Ltd., will be held on December 8, 1958, in Johannesburg.

The following is the Statement of the Chairman, **Mr. M. E. Rich,** circulated with the Directors' Report and Accounts for the year ended June 30, 1958:—

The net profit for the year, after allowing for interest on the Uranium Loans and amortization of the Uranium project, put before taxation, amounted to £610,066 as compared with £507,351 for the previous year. This increase of £102,715 is largely accounted for by the greater tonnage treated, particularly from underground, as a result of which net revenue from Uranium increased by £232,741, while revenue from gold and silver increased by £15,098. However, mining and general expenditure not charged directly against Uranium revenue increased from £294,064 in 1957, when 120,221 tons were mined, to £434,290 last year when the tonnage mined reached 207,792 tons. With the increase in tonnage the unit cost per ton milled decreased from 47.3s. to 41.5s.

Dividends and Allocations

Funds appropriated for capital expenditure amounted to £113,938 and dividends Nos. 11 and 12, totalling 3s. per share, together with Non-Resident Shareholders' Tax thereon, absorbed £305,469. In addition, having worked off its assessed loss, our Company became liable for taxation during the year, and this, together with the State's Share of Profits in terms of our mining lease, amounted to £160,050. After taking into account all these items, the balance of the profit for the year to be added to the unappropriated profits brought forward from last year was £30,902, increasing the Unappropriated Profits at June 30, 1958, to £321,944 of which some £200,000 is represented by Stores and Trade Investments.

Quota

The quota of Uranium oxide allocated by the Atomic Energy Board to our Company under the programme of production by approved producers is dealt with fully in the Directors' Report, and there is nothing I can add to this except to say that our quota of 133.63 short tons for the six months ending December 31, 1958, is not unduly restrictive and will not involve any curtailment of our present or planned scale of operations. In this connection it may be noted that our production of Uranium oxide for the six months ended June 30, 1958, was 133.089 short tons.

Results in Current Year

Since the close of the year, operations at the Mine have continued normally, and the following are the salient features of our results for the quarter ended September 30, 1958. The total tonnage treated was 130,650 yielding 135.239 lbs. of Uranium oxide. The working profit amounted to £248,440, and after deducting the quarterly capital uranium loan repayment of £65,626, capital expenditure of £16,546 and taxation and State's Share of Profits estimated at £91,000, the balance of unappropriated profit was increased to £397,212. Development footage was 3,017 feet of which 2,541 feet was on Reef. The footage sampled was 2,940 feet, of which 2,130 feet or 72 per cent. was payable, averaging 1.98 lbs. of Uranium oxide over a width of 40 inches.

In conclusion I would like to express the Board's thanks to Mr. J. Royce-Evans and his Staff at the Mine and those connected with the Mine at Head Office, for their loyal and efficient services during the year.

1s. in respect of 1958-59. After allowing for these the yield on the 1957-58 dividend is over 14 per cent. The special interim, incidentally, will not affect, it is stated, consideration of the regular interim next May.

RENONG AND RESTRICTION

Sir John Hay, chairman of Renong Tin Dredging, says in his statement accompanying the annual report that the history of the International Tin Scheme lends support to the view that had producers been left to their own devices the efficient producer would have fared better, production as a whole would have been more economic, stocks would have been at a more manageable level and the industry would not be enmeshed in the rigidities of a scheme from which it will be difficult to extricate itself. (Page 577.)

Whether or not they agree with these forthright views, stockholders in Renong will no doubt regard rather ironically the fact that the onset of output restriction under the scheme coincided with the advent of very high value ground at Jinjang as a result of which that property not only quickly fulfilled its quota but also built up a substantial stock of tin ore that had by June 30 last reached the permitted maximum. The quotas for all three of the company's dredges have thus now been grouped and operations are being confined to Jinjang. Even so, in 1958-59, "it will be hard indeed to earn a profit", Sir John says, after allowing for maintenance of the closed-down dredges and the retention of key staff and labour in unproductive employment.

Renong 2s. stock units are 7s. Its dividend of 6d. tax free required £17,500 out of 1957-58 taxed profits of £27,240.

KILEMBE MINES EXPANSION

A new expansion programme, designed to increase output of blister copper from 10,000 to 15,000 tons a year over a period of three or four years, has been announced by Kilembe Mines.

Kilembe is mainly financed by the Canadian company, Frobisher, Ltd., in conjunction with the Colonial Development Corporation and the Uganda Development Corporation. It has been producing copper from the foothills of the Ruwenzori Mountains for the past two years.

The mine's managing director, Mr. A. E. Pugsley, said that the mine's current development programme was now almost completed. This has involved the opening up of new shallow deposits of copper oxide ores to supplement output of deep-mined ores and has increased annual blister copper output to 10,000 tons from 7,000 tons.

He added that the new expansion scheme would involve both deep-mined and opencast working. Deep-mined workings would be at an altitude of about 6,000 ft. compared with 4,000 ft. in the present mine workings.

London and African.—Net profit of London and African Mining and Investment for the year to September 30 last was £15,890, compared with £84,968 in the preceding year. A dividend of 10 per cent is recommended, against last

(*Continued on page 575*)

JOHANNESBURG CONSOLIDATED INVESTMENT COMPANY

(Incorporated in the Union of South Africa)

EXTRACT FROM MR. D. A. B. WATSON'S SPEECH

The annual general meeting of the Johannesburg Consolidated Investment Company, Limited was held on November 18 in Johannesburg.

Mr. D. A. B. Watson, who presided in the unavoidable absence of **Mr. H. J. Joel,** the Chairman, said the profit, before providing for tax, amounted to £2,340,434, a decrease of £128,832 compared with the previous year. The gross income was slightly higher than that for the previous year and the decrease in profit arose mainly from the fact that a sum of £175,242 which had been spent over a number of years on various prospecting ventures was written off during the year under review.

Mr. Watson continued: I am very pleased that the forecast made in the chairman's statement last year that investment income would be substantially maintained in the year under review has been borne out. The slight increase in this income masks a number of fluctuations, income from copper, platinum, lead and zinc being lower and that from gold, diamonds, manganese and various industrial interests being higher. While, as stated in the Directors' Report, income from diamond interests was affected by the decline in diamond sales during the year, the comparative effect was more than off-set by income from additional investments acquired in diamond companies during the previous year.

After providing for taxation, the net profit was £1,940,313, compared with £1,598,414 for the previous year. Including the credit of £500,000 in respect of taxation overpaid in previous years, and the balance of £297,550 unappropriated at June 30, 1957, the amount available for appropriation was £2,737,863, as compared with £1,897,254.

In the light of the satisfactory profits earned during the year the Board naturally gave careful consideration to the advisability or otherwise of repeating the previous year's rate of dividend. Two main considerations influenced us in deciding with regret to reduce the rate of dividend from 5s. to 4s. 6d. per share. In the first place it was necessary to provide for the heavy depreciation in the book value of the Company's investment portfolio which amounted to £1,237,777, as compared with only £300,621 last year.

The second consideration was that, in view of the likelihood of some falling off in the Company's investment income during the current year and the uncertain outlook at that time for some of the industries covered by our portfolio, it seemed prudent to add to the Investment Reserve an amount over and above that required to meet the depreciation which arose in the year under review. Having regard to the exceptional nature of the credit of £500,000 in respect of the over-provision for taxation in previous years, we considered it appropriate to transfer an equivalent amount to the Investment Reserve. The total amount of the Investment reserve, namely, £1,500,000 is not, in the opinion of your Board, excessive in relation to the total book value of our portfolio and the still uncertain outcome of our investment in Freddies Consolidated Mines, Limited, which was valued at 3s. per share at June 30, 1958, our holding at that date being 7,456,000 shares. It is of interest to note that, notwithstanding the further depreciation on this investment since the Balance Sheet date, the overall market value of our investments has appreciated during the same period.

After making the above appropriation to Investment Reserve and paying the dividend of 4s. 6d. per share, the carry forward was reduced by some £56,000.

There has been a considerable improvement in the liquid position of the Company. Current assets exceed current liabilities by £1,371,167, reflecting an increase of £702,385 over the figures for the previous year.

As mentioned last year, the bulk of our dividend income arises from our interests in diamonds, copper, platinum, base metals and South African industrial activities. At that time world economy was in a state of uncertainty, industrialists were adopting a cautious attitude and the immediate outlook for most basic commodities was in consequence obscure. Our investment income is still derived from substantially the same sources and the economic trends in the world in the intervening year have not yet crystallized into a sufficiently definite pattern to permit of any firm forecasts regarding the future demand for these commodities.

On the whole it does appear that there are grounds for hoping that the serious decline in recent years in the demand for basic industrial commodities may have reached its lower limit and that a gradual recovery, assisted by the necessity to restock depleted inventories, may be in sight.

In the course of a detailed review of conditions and prospects in the various fields of investment, Mr. Watson, commenting on the gold mining industry said: Your Company's investments in gold mining interests, other than Freddies Consolidated Mines Limited, are providing satisfactory returns and our income from these has increased and is expected to increase further during the current year.

Uranium production, and the profits earned by the gold mining industry from this source, continued to increase and reached record figures during the twelve months ended June 1958. Uranium producers in common with the producers of many other metals face today a position of at least temporary over-supply, but are fortunately protected by contracts which cover them for considerable periods ahead. Beyond the expiry dates of these contracts it is not as yet possible to forecast what the position of the metal will be.

To sum up, it seems inevitable, in view of the less profitable conditions at present existing in a number of fields of investment in which your Company is interested, that some reduction in the net profit for the current year is to be expected. Unless, however, any unforeseen depreciation in the book value of the Company's investments occurs during the current year the Board expects that it will be possible this year to maintain the 4s. 6d. dividend rate.

RHODESIAN SELECTION TRUST GROUP OF COMPANIES

Incorporated in Northern Rhodesia

The following are abridgments of the Statements dated October 15, 1958, by the Chairman, Sir Ronald L. Prain, O.B.E., circulated to the members.

RHODESIAN SELECTION TRUST LIMITED

The Mufulira company paid an interim dividend and the directors have recommended a final dividend payable in December, the two totalling 3s 3d gross per share, which will mean an income to your company of £1,031,000 for the year. Administration and sundry expenses, less interest received, reduce this figure to about £915,000. There are no taxes payable on this income since we receive this income fully franked. The transfer to general reserve is £125,000.

The distributable profit for the year amounts to £870,000. An interim dividend of 1d a share, less Rhodesian tax at 7s 6d in the pound, was paid. This interim dividend represented all that this company could pay from the interim paid by Mufulira, which in itself must be considered as a token dividend.

A final dividend of 6d gross, making a total for the year of 7d gross, is now recommended, costing £825,000; the balance carried forward is £45,000.

Mufulira and Chibuluma

Much planning has been carried out during the past year on the Mufulira West development plans and as a result some of the technical details have been amended, but there remains no change in the scheme as a whole in respect of production capacity or capital cost. The scheme is now expected to be completed in 1962 with the exception that the extension of the electrolytic refinery has been postponed.

Chibuluma's cost of producing copper should remain relatively satisfactory and should enable the company to earn substantial profits. The present state of the cobalt market remains depressed and Chibuluma will have to take a decision in regard to creating further treatment facilities in Rhodesia. This involves an assessment of the future market for cobalt and of its profitability for Chibuluma. If the decision is taken to proceed with this plant it will inevitably involve substantial capital expenditure.

ROAN ANTELOPE COPPER MINES LIMITED

Throughout the year we operated on a curtailed production programme, as our contribution towards the correction of the overall world copper position. Our curtailment was to a rate equivalent to 90 per cent. of our capacity, giving a target of 80,000 long tons. In fact, production amounted to 79,931 tons. The average cost of production was £138 per ton.

Financial Results

Sales for the year amounted to 77,444 long tons. The average price at which our copper was sold was £177 per ton. Gross profits amounted to £2,920,000. From this has to be deducted the decrease in the value of copper stocks, amounting to £398,000; net interest and miscellaneous items brought this profit to £2,972,000.

Tax amounts to £870,000. The appropriation for replacements reserve is £650,000 and for general reserve £625,000.

After making the appropriations already referred to and some minor adjustments in respect of loan stock redemption reserve and the balance brought forward, the balance available is £946,000. An interim of 1d per share, less taxes, was paid and the recommendation for the final dividend is 4d per share, less taxes.

Mine and Refinery

It is our present policy to continue to operate on a curtailed basis of 90 per cent. of capacity and this will again give us a target of 80,000 long tons for the year. Ore reserves are 95,191,000 tons.

The construction of the first stage of the Ndola Refinery was virtually completed during the year. The second stage is expected to be ready early in 1960.

Industrial Relations

Discussions were proceeding at the end of the year between the copper mining companies and the European Mine Workers' Union on proposals which the companies had put forward with a view to improving efficiency and effecting economies in the industry.

Negotiations on the question as to whether certain individual jobs should in future be carried out by artisans, or could be done by other employees, continued with only minor success and eventually broke down in August when the Union rejected the companies' proposals in respect of 22 jobs, which remained under dispute, including all the more important which had been at issue.

The companies informed the Union that they had no alternative but to implement these proposals forthwith, pointing out that matters of principle were involved, including the duty of management to conduct operations in the way in which it considers to be most efficient.

The Union, which had shown little disposition to negotiate on any of the 22 jobs, instructed its members not to carry out any of the disputed jobs and as a result a number of men who refused to perform tasks allocated to them had to be discharged by the companies.

On September 9 the Union held a strike ballot and despite a number of compromise offers made by the companies, called a strike on September 12.

At the time this statement goes to press the strike is in its fifth week and negotiations are proceeding between the Copperbelt companies and the Union under an independent chairman. In the circumstances it would be difficult for me to say more in this statement and I must reserve comment for a later occasion.

Revisions were made during the year to the European employees' bonus scheme and as from July 1 African employees have also been included in the revised scheme on exactly the same basis as Europeans.

Since the end of the financial year the European Union has reverted to a claim left unresolved in January, 1958, for an all-round wage increase of 15 per cent.

The African Union has also requested the reopening of conciliation proceedings, adjourned in September, 1957, on its claim for a wage increase for all ticket-paid employees.

Copper Marketing

During the year the price of cash copper on the London Metal Exchange fluctuated between £160 10s and £222 15s per ton. At the beginning of the financial year it was £216, reaching a low point of £160 10s in February, 1958, and ending the year at £197 5s. By the middle of September, before the influence of the strikes in Rhodesia and Canada began to be felt, the price was about £210 per ton.

The demand for copper in Europe has been maintained and premiums of up to £10 per ton over the London Metal Exchange quotation have been paid regularly for physical delivery of electrolytic wirebars. The fact that the London Metal Exchange does not reflect these premiums is an unsatisfactory state of affairs for those producers, and this includes most major producers, who sell some part of their output on the basis of the London Metal Exchange quotations. This is perhaps inevitable so long as the London Metal Exchange contract leaves the delivery options to the seller.

In my opinion it is most desirable that a further attempt be made to introduce a London Metal Exchange contract under which buyers will have the option of specifying the type of copper they wish to receive. Until this is done I fear that the L.M.E. contract may continue to reflect a discount price and this, in the long run, is not a state of affairs which is conducive to maintaining the international reputation of the Exchange.

World Production and Consumption

There is a general feeling in the copper industry that the prices of last February represent the bottom of the decline which began in March, 1956, and that the subsequent improvement is the beginning of a period of greater stability. This situation has probably been brought about by two factors. The first was the continued good demand in Europe at a time when consumption in America was running at an unexpectedly low figure, and the other is the extent of the curtailment undertaken by most of the bigger copper producers of the free world.

Since my statement last year these curtailments have become more numerous and more important, resulting at one time in a total free world curtailment at an annual rate of over 450,000 tons of copper. Some of these curtailments have since been relaxed but, generally speaking, the producers of the free world are still imposing on themselves some restriction of output.

I expressed the opinion last year that if the majority of larger producers adopted this course the degree of curtailment then necessary to balance the statistical picture might not be unduly great, and also the opinion that production restriction appeared to present the best chance of stabilizing the copper position as compared with the various other suggestions which have been made from time to time for a solution of this problem.

I believe that the events of the past year have justified this view, and that the copper industry may be putting its house in order by the soundest and least painful method. It seems elementary that when you have too much of any commodity the simplest solution is to produce less until more is consumed. This solution is not one which can be readily applied by all industries but where mining is concerned it appears to be the quickest and most effective method of correcting a statistical imbalance.

Conclusion

The copper industry is just emerging from a period of difficulty such as inevitably accompanies a drastic fall in price, but thanks in a large degree to its own exertions it is now beginning to build up the industry on a sounder basis. It is impossible, if one is impartial, not to view this period as having been a healthy factor in the development of the industry, as it has brought realism to the production side and renewed confidence to the users of the metal.

In the short view, much will depend on the course of business activity in Europe and America during the coming months; copper appears to be, however, in a sounder position than it was a year ago and perhaps sounder than certain other commodities, and is well placed to take advantage of increased business activity.

However, mining is a long-term business requiring planning many years in advance and its health or otherwise should not be judged by results over a short period. Taking the longer view, I have always expressed faith in the future of the copper industry and nothing has transpired to change that view. In fact the studies we regularly make of this subject indicate the possibility of a greatly expanding use of the metal, though always with one important qualification, namely that the price of the metal must not be allowed to run away upwards beyond the various points at which substitution is certain to occur.

The solution would appear to lie in the ability of the mining industry to produce enough copper to meet the expanding consumption of the world, and yet not hesitate from time to time to adjust this production rate at periods of low consumption; in this way it might be possible to avoid the swings in price which have characterized the past seven or eight years. Provided that the copper industry has learned this lesson and is prepared to take steps to prevent such occurrences again, it does seem to me as if copper has prospects which few other commodities can equal in promise.

MUFULIRA COPPER MINES LIMITED

(The Chairman's remarks under the headings Industrial Relations, Copper Marketing, World Production and Consumption, and Conclusion are similar to those contained in his statement to the Stockholders of Roan Antelope.)

Results for the Year

Throughout the year we operated on a curtailed production programme as our contribution towards the correction of the overall world copper position. Our curtailment was to a rate equivalent to 90 per cent. of capacity, giving a target of 93,000 long tons of copper. In fact, production amounted to 92,994 tons.

The average cost of production was £136 per ton of electrolytic copper. Sales amounted to 88,847 long tons.

The average price at which our copper was sold was £188 per ton. Gross profits amounted to £4,178,000. Adding the increase in the value of copper stocks, amounting to £277,000, interest earned, less interest paid and minor items brought this profit to £4,900,000.

Tax liability amounts to £1,430,000 and the appropriation for replacements reserve is £750,000. The appropriation to general reserve has been put at £1,250,000.

After making these appropriations and some adjustments in respect of previous years' taxes and the balance brought forward, the balance is £1,679,000. An interim of 8d per share, less taxes, was paid, and the recommended final dividend is 2s 7d per share, less taxes.

Mine Position

It is our present policy to continue to operate on a curtailed basis of 90 per cent. of capacity and this will again give us a target of 93,000 long tons of copper for the current year.

The main constructional activity at the mine continues to be in respect of the Mufulira West development expected to be completed in 1962 with the exception that the extension of the electrolytic refinery has been postponed owing to favourable opportunities for continuing temporarily the shipment of fire refinable grade copper.

CHIBULUMA MINES LIMITED

The mine maintained an average production rate of over 40,000 tons of ore per month. The grade of ore was 4.70 per cent. copper. Mine production was 17,861 long tons but in addition the stock of copper concentrate which existed at the beginning of the year was smelted, resulting in a further production of over 9,000 tons. The total saleable output was 27,177 long tons.

The cobalt treatment plant operated throughout the year. The process there consists of the conversion of a cobalt/copper concentrate into a cobalt/copper matte which is shipped to Belgium for final conversion into cobalt and copper.

The cobalt matte production was 6,645 tons. The rate of production is expected to reach 1,100 tons per month.

Results for the Year

Copper sales totalled 27,210 long tons at an average price of £177 per ton.

As far as cobalt is concerned we are utilizing our production at present to meet the greater part of our annual obligation to the United States Government in respect of loan repayment. In this way we delivered 587 long tons of cobalt metal having a value of £936,000.

The gross trading profit was £1,543,000 and the net profit £1,352,000 on which no tax is payable on account of the Federal tax laws applying to new mines.

Under the terms of our agreement with the U.S. Government during the past year we delivered copper and cobalt together aggregating a value of £1,530,000. The loan was reduced at June 30, 1958, to £3,973,000.

The board has appropriated £200,000 for replacements and £1,150,000 has been transferred to general reserve.

Technical Plans

There is no plan for Chibuluma to create its own smelting facilities for copper, nor is any problem anticipated in the near future over the ability to have concentrates smelted elsewhere on the Copperbelt for the production of final metal for shipment overseas.

As far as cobalt is concerned, at present we are exporting overseas an intermediate product, namely matte, and in the long run this is a costly process as our matte contains only about 10 per cent. cobalt. Your board therefore has under constant consideration the question of creating further treatment facilities in Rhodesia, but no conclusion has yet been reached in this respect.

MINING FINANCE—*Continued*

year's total of 20 per cent on a smaller capital. The reason for the decline, says the chairman, Mr. W. J. C. Richards, was that in 1957 the holding in Premier Consolidated Oil was sold at a handsome profit, while no such fortuitous opportunity occurred in 1958. Over 50 per cent of the company's capital is invested in the Mines Development Syndicate, which owns a lead-zinc mine in Nigeria. The mine is of considerable promise, and as soon as metal prices begin to recover, the capital necessary to bring the mine to production may be forthcoming from other mining groups " who have shown a genuine interest ". (Page 578.)

New Guinea Goldfields.—Net profit of New Guinea Goldfields for the year ended June 30 last was £A84,654 (1957: £A70,349). After transferring £A37,215 to gold mining profits reserve, the carry forward is increased to £A124,718 from £A77,279. A dividend of 3d. per stock unit is to be paid from the gold profits reserve. Meeting, Sydney, December 15.

Zandpan Prospectus.—The prospectus of Zandpan Gold Mining, the new flotation in the Klerksdorp area of the Transvaal, is now available from Anglovaal's London office. Copies, together with provisional letters of allotment, will be posted to London registered shareholders on November 27.

Trepca and Mr. Pasic.—The liquidator of Trepca Mines states that after legal argument last Friday, the Registrar adjourned the hearing in regard to the proof of debt by Mr. Pasic until Thursday, November 27.

National Mining and Premier Oil.—In his advance statement circulated with the accounts of National Mining Corporation, Mr. C. J. Burns, the chairman, says that the company has had further discussions with Premier Oil regarding a possible sale of the royalties owned by National Mining. Difficulties have arisen in arriving at an equitable purchase price, but discussions are continuing.

Rooiberg Profits Down.—Rooiberg Minerals Development, South African tin producer, made a net taxed profit of £72,892 in the year to June 30 last compared with £132,451 in 1956-7. The dividend for the year was 7½ per cent, against 12½ per cent. Development disclosures during the year were generally satisfactory, and electrification of the various sections of the property has now been completed. Meeting, Johannesburg, November 27. Mr. A. W. Stewart is chairman.

Lydenburg Slashes Payment.—Lydenburg Platinum have declared a dividend of 4½ per cent for the year ended August 31 last. This compares with 23¼ per cent —the total of two payments—in 1956-7. Subject to audit, the net profit for the year slumped to £36,000 from £245,130, a direct result, it must be assumed, of Waterval Platinum not having paid a dividend this year. Lydenburg has a 26 per cent interest in Waterval, which in turn owns 39 per cent of the equity of Rustenburg Platinum, the producing company. Other Lydenburg's holdings are in certain of the O.F.S. gold mines.

Ipoh's Profits.—Last week it was stated that the net profits of Ipoh Tin Dredging in the year 1957-58 were £38,984. This should have read £32,984.

RHODESIAN ANGLO AMERICAN LIMITED

(Incorporated in Northern Rhodesia)

REDUCED INCOME FROM COPPER MINING INTERESTS

MR. H. F. OPPENHEIMER ON ECONOMIC DEVELOPMENTS IN THE FEDERATION

The following are extracts from the statement by the Chairman, **Mr. H. F. Oppenheimer,** which has been circulated with the Annual Reports and Accounts for the year ended June 30, 1958.

The revenue of your Company for the financial year ended June 30, 1958, has been considerably reduced as a result of lower dividends declared by Rhodesian copper mining companies, which are our primary source of income. Considering, however, that the price of copper fell early in 1958 to as low as £160 per ton, the dividends we have received were not unsatisfactory. The net profit for the year of £2,838,000 after taxation compares with £5,155,235 for the previous year. After writing off costs and the discount on the recent issue of loan stock, amounting in all to £309,000, the Directors have been able to recommend a final dividend of 3s. per share (net) which, with the interim dividend of 1s. per share, makes a total of 4s. for the year.

Recently the price of copper has improved considerably, and provided an early solution can be found for the present labour unrest in the Northern Rhodesia copper industry, our revenue from dividends next year should show an improvement.

Offer of Loan Stock

Your Company, with its large investments in varied enterprises in the Federation of Rhodesia and Nyasaland, has rather a special role in the territory's development. It was decided towards the end of 1957 that, although the price of copper was at a very low level and economic conditions in the United Kingdom were difficult, the raising of fresh funds could no longer be deferred, and early in 1958 an offer of £4,000,000 of 6 per cent. registered loan stock was made to members. Holders of this loan stock were given an option to take up 1,000,000 ordinary shares in your Company at any time up to March 31, 1963, at 80s. per share, in the proportion of one share for every £4 of loan stock held. Payment for shares subscribed on exercise of the options may be made either in cash or by the surrender of loan stock of the equivalent nominal value.

We required these funds not only to maintain and extend our interests in the active prospecting and exploration work being carried out principally in Northern Rhodesia, and in other financial enterprises in the Federation, but also for following up our major investments in the copper mining industry, notably in Bancroft Mines Limited.

Bancroft Mine

Bancroft Mine came into production in January, 1957, a time when the serious decline in copper prices was beginning to manifest itself. From the start production costs at that mine were inflated by difficult mining conditions and by the consequent necessity of carrying out extensive underground development. As part of the curtailment of the aggregate production of the three mines administerd by The Anglo American Corporation, Bancroft entered into an agreement with Rhokana and Nchanga whereby it ceased production for a year from April 1, 1958, in return for funds to finance the necessary research and development work. This arrangement is of undoubted advantage to our Company as a shareholder of the Bancroft Company, and we were glad therefore of the opportunity a month later to participate in providing permanent finance for that Company.

Vigorous implementation of the underground development programme, aided by the willing co-operation of the mine employees, has already brought about a marked improvement in conditions at the mine; the Consulting Engineers consider that the main problems have been overcome and that the re-opening of the mine need not be delayed for any technical reasons.

The flooding of the Kansanshi Copper Mine, which occurred in October, 1957, temporarily stopped work at the mine, where the potential of the sulphide ores was being explored by underground development financed from the sale of copper. Metallurgical investigations into the combined treatment of the oxide and sulphide ores have, however, been continued and we have been contributing to the cost of this work. The tests so far carried out are encouraging, and I am hopeful that when these are completed it will be possible to re-open Kansanshi as a small but profitable mine. This would require further capital, but in consequence of having strengthened our cash resources, we are ready to provide our share if called upon.

Exploration and Prospecting

In seeking new mining ventures through our interest in Chartered Exploration Limited and other prospecting Companies, we are fulfilling the proper role of an active mining and finance Company. Modern methods of aerial geophysics are being applied, and these are followed up wherever indicated, by geochemical analysis and surface drilling. The concessions are vast, and although certain mineralized areas have been found and are now being tested by surface trenching and by drilling, we cannot expect any indication of the economic potential of these areas for some time.

Apart from our investments in the mining industry, we are also interested in Rhodesian Iron and Steel Company Limited, and in the manufacture of ferrochrome by Rhodesian Alloys Limited. The world chrome market is at present oversupplied, and this is affecting adversely both the domestic primary producers and the ferro-alloy industry, but despite these setbacks I am confident of the long-term future of industry in the territory.

I believe that the solution of the problems of Africa depends largely on rapid economic development; capital to bring about such development is, therefore, not only necessary but essential. The people of all races in the Federation are in increasing numbers coming to realize that the greatest measure of hope and security for the future lies in the economic advantages to be gained from co-ordinated development. If the country can find the money and the men with the technical knowledge and ability required to create a good life and freedom from want for all those who live there, it will have gone a long way towards solving the problems of race.

RHOKANA CORPORATION LIMITED

(Incorporated in Northern Rhodesia)

EXTENSIVE IMPROVEMENTS TO SURFACE PLANT

MR. H. F. OPPENHEIMER REVIEWS COURSE OF COPPERBELT STRIKE

The following are extracts from the statement by the chairman, **Mr. H. F. Oppenheimer,** which has been circulated with the report and accounts for the year ended June 30, 1958:—

The income of our Company, which is derived almost wholly from mining operations and from dividends on investments in other Northern Rhodesian copper producers, is directly related to the state of the base metal market. While fluctuations in prices are to be expected, copper has in recent years been subjected to wider price movements than most base metals and a comparison of the net profits after taxation in the last three years illustrates the effect of this on our profits.

Profits

The net profit after taxation in the financial year ended June 30, 1956, during which the London Metal Exchange price averaged £371 per ton, was £15.9 million as compared with £9.9 million in 1957, when the average price of copper was £265, and £4.3 million for the year ended June 30, 1958, when the average price was £186. As some of the dividends we received arose from profits earned in the previous year, these figures do not reflect the full effect of price movements in any year. If revenue from the sale of cobalt and from other sources had not remained fairly constant and there had not been an increase in the price of copper after the low level of £160 to which it fell in February, 1958, our profits would have been even lower this year.

In order to obtain optimum efficiency we have had to undertake, over the past five years, a far-reaching programme involving expenditure of very considerable sums on the maintenance and renewal of existing plant and on the extension of surface and underground operations.

We have, for example, recently completed underpinning the smelter foundations which had been endangered by the subsidence. In addition, we have had to provide extensions to the smelter and ancillary plant to cater for increased production at the Nchanga Mine and the new production of Bancroft. At the same time, the Company's own produc-

tive capacity has not only been increased but also brought on to a more balanced basis by providing greater flexibility in the mining programme. Thus the Mindola No. 2 shaft, which was primarily designed to provide the ventilation required for mining at greater depths, is also being equipped for hoisting ore. One of the technical innovations being introduced at this shaft is an automatic system—believed to be the first of its kind in Southern Africa—for feeding broken ore into skips underground and raising them to the surface. The work on the Mindola No. 2 shaft and certain other capital works will continue for the next few years, but it is hoped that the rate of expenditure will be reduced after June 30, 1959.

This year we have decided to appropriate £1.4 million from profits for capital expenditure, which includes a provision of £0.35 million towards expenditure in 1958/59, and at the same time the Board was able to recommend a final dividend of 20s. (net) per £1 unit of stock, which together with the interim dividend of 5s. make a total dividend distribution of 25s. (net) per unit for the year ended June 30, 1958.

Production Policy

Curtailment of production throughout the world has contributed greatly to the marked improvement in the price of copper in recent months. Our Company entered into an arrangement with Nchanga Consolidated Copper Mines Limited and Bancroft Mines Limited, to effect a reduction of about 10 per cent in the combined planned outputs of the three companies for one year from April 1, 1958. It was agreed that Bancroft, a new mine experiencing difficulties and therefore the highest cost producer, should cease production on March 31, but as this would have resulted in an overall reduction of more than 10 per cent, our Company and Nchanga increased their production slightly. In consideration for its part in this arrangement we agreed, together with Nchanga, to pay Bancroft a sum sufficient to finance certain underground development work and to cover the interest on its loans. Apart from the obvious advantage of avoiding a cut in the rate of production we have a very large interest in Bancroft Mines Limited, and it was clearly to our advantage to assist that company to overcome its difficulties.

In February, together with Anglo American Corporation of South Africa Limited, Rhodesian Anglo American Limited and Nchanga Consolidated Copper Mines Limited, we agreed to participate in the scheme to provide Bancroft Mines Limited with capital of a permanent nature. Bancroft proposes to issue on April 1, 1959, 7,500,000 6½ per cent redeemable participating preference shares of £1 each at par to replace short-term loans totalling £7.5 million. We will then convert our holding of £1.5 million 5 per cent Bancroft Notes, formerly redeemable between 1958 and 1961, into 1,500,000 of the new preference shares. In consideration of our agreeing to do so we have been granted the right to subscribe up to March 31, 1963, for 600,000 ordinary shares in Bancroft Mines Limited at a price of 20s. per share.

Copperbelt Strike

In January this year our Company, together with the other producers of the Copperbelt, sought to obtain the Union's agreement to review some 106 jobs done by artisans which were deemed to be sufficiently simple to be performed by non-artisans or to be included in the normal duties of other classes of artisans.

In the course of the protracted discussions which ensued agreement was reached in respect of 84 of these jobs, but the talks broke down when the Union refused to discuss the remaining 22 jobs which, from the companies' point of view, were among the more important. All efforts to bring about a resumption of the negotiations proved unsuccessful, and after a last minute conciliation meeting on September 12, which again resulted in a deadlock, the Union called its members out on strike on that day.

At the time of writing, the mines on the Copperbelt had been closed for six weeks.* A six weeks' shut-down of the Copperbelt mines results in about 70,000 long tons of copper being withheld from the market. It is not likely that this loss can be made good except over a long period of uninterrupted operations on all the producing mines.

Prior to the strike by European daily-paid employees the price of copper had been fairly steady at about £205 after a gradual rise over the preceding few months. However, at the end of September the realization that the Northern Rhodesian copper mining companies had not, despite popular belief, large stocks of finished copper to fall back on, contributed to a sharp rise in the price to the highest level since May, 1957.

I am hopeful that by the time this review reaches members, the strike will be settled, and I trust that it will not be long before good labour relations on the mine are restored.

**The strike ended on November 4, which was shortly after the statement was printed.*

THE RENONG TIN DREDGING COMPANY

SIR JOHN HAY ON EFFECTS OF TIN RESTRICTION

The 45th Annual General Meeting of The Renong Tin Dredging Company, Limited will be held on December 11 at 52/54 Gracechurch Street, London, E.C.

The following is an extract from the circulated statement of the chairman, **Sir John Hay.**

Accounts

In spite of the stifling effect of enforced restriction of production, the Company's profit for the last financial year was only fractionally below that for the previous year. To put comparison into proper focus, however, it must be recalled that in 1956/57, No. 2 Dredge was engaged for a long period in working through rough, near-barren ground to a new dredging site, causing mining expenditure to be abnormally high and revenue abnormally low. In the last few months of 1957 there was every indication of a recovery in the profit ratio, but this prospect vanished when we were confronted with the necessity of putting the Dredges on short-time working in order to comply with the restriction regulations. Although profit for the year under review at £53,396, before charging taxation, appears comparatively good, in considering their recommendation as to the rate of dividend the Board felt that heed must be given to current conditions and circumstances. As the Directors' Report records, production has been cut to 43 per cent. of assessed capacity: only one of the three Dredges is now at work, and it will be hard indeed to earn a profit after allowing for maintenance and upkeep of the closed-down Dredges, and the expense involved in the retention of key staff and labour in unproductive employment. Taking all these factors into account the Board have nevertheless felt justified in recommending an Ordinary Dividend of 6d. net per 2s. unit.

Mining Operations

The direct result of restriction upon the operations of this Company's Dredges has been severe indeed. At Jinjang, very high value ground was unexpectedly encountered in December and January with the result that the export quota for that mine was fulfilled early in the first quota period, before the end of which a substantial stock of tin ore was built up in addition. As a result, it became necessary to close the Dredge, initially for one day in seven, but later on more frequently and operations were continued on this unsatisfactory and expensive basis until the end of the financial year. Even so, the rate of recoveries remained consistently higher than estimated borehole values, and the stock of tin ore on the mine inevitably increased until, by the end of the financial year, it had reached the maximum permissible under the Malayan Tin Control Ordinance. At Rasa, the introduction of restriction and the lower price of tin metal combined to render the continuance of operations unremunerative and No. 3 Dredge was closed down on May 22, No. 2 Dredge following suit on June 5. The quotas for all three Dredges have been grouped and the Board's policy of confining mining operations to Jinjang should allow the stock of ore at that mine to be gradually disposed of and more economic working resumed.

Tin Restriction

Whether stabilization schemes for world commodities, with all their paraphernalia in the form of Buffer Stocks, buying and selling within predetermined limits supported by control over output, are suited to our modern economy, is an intriguing subject, but not one that can be examined here.

The defects of the Tin Scheme were early made evident. It was not comprehensive. It failed to adhere to its first modest aims and raised the floor price against the prevailing downward trend. After much tribulation, involving a measure of restriction far in excess of anything originally imagined and the accumulation of stocks beyond the capacity of the industry to finance, the floor price has at last been reached and maintained.

The history of the Tin Scheme so far, however, would seem to lend support to the view that had producers been left to their own devices, the efficient producer would have fared better, production as a whole would have been more economic, stocks would have been at a more manageable level, and the industry would not be enmeshed in the rigidities of a scheme from which it will be difficult to extricate itself.

WANKIE COLLIERY COMPANY LIMITED

(Incorporated in Southern Rhodesia)

LEVELLING OFF IN DEMAND FOR COAL IN RHODESIA

MR. T. COULTER REVIEWS LONG-TERM PROSPECTS

The following are extracts from the statement by the Chairman, **Mr. T. Coulter**, which has been circulated with the report and accounts for the year ended August 31, 1958:

Accounts

The profit for the year amounted to £1,369,351 after providing for depreciation, debenture interest, debenture trustees' fees and directors' emoluments, but before taxation. This compares with a figure of £1,227,030 for 1957. Taxation absorbed £315,000 and a sum of £140,000 was transferred to taxation equalization reserve.

To the profit figure for the year has been added £180,319, being the net amount placed to a special surplus revenue reserve at the end of last year after providing for taxation on a gross amount of £288,511 pending a settlement of the Company's claim for an increase in the basic cost of production as affecting the margin of profit per ton.

In conformity with the terms of the Price Agreement an amount of £385,000 was transferred to general reserve, which now stands at £1,655,000.

The total distribution to shareholders for the year was £659,726 which represents 1s. 3d. per share and compares with 1s. 1¼d. per share for the previous year.

The Company's income although primarily dependent on its coal mining activities, is not solely made up from coal revenue. An increasing factor is the interest received from investments, loans and deposits which with sundry revenue from our other activities and after allowing for taxation, represents at least 3d. per share in the make-up of the dividend for the year.

Capital expenditure on fixed assets during the year amounted to £254,061. The balance sheet shows fixed assets totalling £7,858,324.

Current assets (excluding stocks and stores), at £3,899,914, as against current liabilities of £1,194,813, indicate a surplus of £2,705,101.

Sales

During the year there has been a levelling-off in coal and coke demand within the Federation. The following tabulation gives a comparison of sales including export for the past three years ended August 31:

	1956 Tons	1957 Tons	1958 Tons
Coal ...	3,695,356	3,945,378	3,911,891
Coke ...	242,848	272,239	242,517

There has been a small decline in output as compared with the previous year. As the Company is now equipped to its contractual output capacity of over 5 million tons of coal per annum, this break in the rising trend is an indication of the considerable gap which still must be bridged before the Company's capital assets can be exploited to the full.

It is disappointing that it has not been possible to take better advantage of the increased availability of railway trucks to step up export sales. This would help to absorb surplus production capacity and to bring down unit costs at the collieries. Unfortunately the railage position has only permitted the Company to enter the export market at a time of growing world coal surpluses and it has proved extremely difficult to build up satisfactory export connections. Our agents are nevertheless pursuing the matter energetically and we hope that the level of exports last year may be improved upon.

Coal Price Agreement

The Company's claim in regard to the basic cost of production as affecting the margin of profit per ton in terms of the Price Agreement, was submitted to arbitration in December last. In the course of this arbitration a settlement was reached and subsequently approved by the Southern Rhodesia Parliament.

The effect of this settlement was that the Company became entitled to retain the amount of £288,511 less tax, which was placed to a special surplus revenue reserve at the end of last year. The settlement also provided for an increase in the basic cost per ton of 1s. 6d. This increase became effective from Sept. 1, 1957, and the basic cost per ton was therefore advanced from 13s. 6d. to 15s. with effect from that date. In future the basic cost per ton is to be varied in proportion to changes in the average annual consumer price index figure for Southern Rhodesia, thus avoiding obscurity in the interpretation of the original clause which led to the necessity for arbitration.

Mining Operations

Early this year a careful study was made of future coal demands in the Federation including the probable effect of the Kariba hydro-electric scheme coming into operation. It seems clear from this examination that the Company will not be called upon in the foreseeable future to utilize the full capacity of its collieries and it is estimated that the maximum possible demand up to the start of power generation at Kariba in 1960 will not exceed a rate of some 4,500,000 tons per annum.

Thereafter we must naturally expect a reducing demand from thermal power stations and the Railways but this should be offset gradually by increasing demands from other users as the economy of the Federation expands.

It was decided in March to close down No. 1 Colliery and place it on a care and maintenance basis to bring the output capacity and establishment at Wankie more into line with existing and probable future coal demands.

Nos. 2 and 3 Collieries, operating on double shift, have a combined capacity of over 4,500,000 tons per annum and can deal easily, therefore, with the current level of demand and any probable increase occasioned by additional export sales.

The Company's sales tonnages to the Copperbelt for September, during approximately three weeks of which month strike conditions existed, were some 30,000 tons below normal.

The lower level of demand means that unit costs of production will continue to run at a higher level than would otherwise have obtained, and this must inevitably affect the selling price of coal.

In addition, in terms of the Price Agreement, the annual redemption of the Company's debenture stock commences during the year ending August 31, 1959, and provision is made for an increase in the profit margin from 5s. 3d. to 5s. 9d. per ton with effect from September 1, 1958, to meet this obligation.

The combined effect of these two items will unfortunately necessitate an increase in the average selling price to 19s. 6d. per ton with effect from November 1 this year.

General

The health of the community at Wankie has remained good. Relationships with our employees both African and European, have also remained on a very satisfactory basis. The extensive investigations carried out over the past two years with the assistance of the Lurgi-Ruhrchemie combination into the commercial possibilities of establishing an oil-from-coal industry at Lubimbi clearly indicated that the scheme as originally envisaged, would at best be only marginally profitable under present-day costs and market conditions. Our efforts are being directed towards the examination of various alternatives, and these investigations are being actively pursued.

LONDON & AFRICAN MINING TRUST

The Nineteenth Annual General Meeting of London & African Mining Trust, Ltd., was held on November 17 at the Chartered Insurance Institute, London, E.C.

Mr. W. J. C. Richards (chairman) presided.

The following is an extract from his Statement, circulated with the report and accounts for the year ended September 30, 1958:—

For some years, part of my review has been filled by a reference to our investment in Mines Development Syndicate Limited, which owns a lead-zinc mine in Eastern Nigeria. Unfavourable conditions for raising capital to equip the mine have continued and have in fact intensified since our last meeting. The price of lead and zinc has fallen further. Nevertheless, some large mining groups and others are genuinely interested in providing the Capital to bring the mine into production, and it is my belief that as soon as metal surpluses decline and prices rise the capital will be forthcoming. An offer from the Government of Nigeria to provide 7/8ths of the Capital had to be refused as the scheme was not large enough to work the mine to its highest economic capacity, and the terms, although probably desirable for Government participation, were quite unsuitable for the structure of a Public Company.

One of the features of the proposition is its low cost of production; the mine could produce attractive profits on today's values. As over 50% of our capital is invested in this mine its prospects are of considerable importance to us, and we shall have to contribute to keep the mine on at least a care and maintenance basis for the time being. It is our intention to preserve our holding in what we believe to be a mine of considerable merit.

The report and accounts were adopted.

CONSOLIDATED AFRICAN SELECTION TRUST LIMITED

A SATISFACTORY YEAR'S TRADING

MR. A. CHESTER BEATTY REVIEWS RESULTS AND OUTLOOK

The 34th Annual General Meeting of Consolidated African Selection Trust Limited will be held on December 12 at Selection Trust Building, Mason's Avenue, London, E.C.2.

The following is the Statement by the Chairman, **Mr. A. Chester Beatty,** which was circulated with the Report and Accounts for the year ended June 30, 1958.

Our consolidated gross profit for the year ended June 30, 1958, amounted to £2,677,000, compared with £2,197,000 for the previous year. The net profit after providing for taxation and adjustments was £1,494,000, compared with £1,015,000.

The satisfactory increase in the net profit was due principally to higher revenue from the sale of our diamonds and to a lower effective rate of tax as a result of the parent Company and our principal subsidiary company, Sierra Leone Selection Trust, becoming qualified as Overseas Trade Corporations.

The sum of £100,000 has been transferred to Reserve for Prospecting and Development and the year's expenditure on prospecting outside our mining areas, amounting to £57,000, has been charged against it. In view of the expenditure on new plant and equipment authorized during the year, £200,000 has been transferred to General Reserve.

An interim dividend of 9d. per share was paid in June and we have recommended the payment of a final dividend of 1s. 9d. per share, making a total for the year of 2s. 6d., less income tax, which is equivalent to last year's distribution on the smaller issued capital. The unappropriated profit carried forward has been increased by £321,000 to £869,000.

The net profit for last year is the highest we have achieved and would have permitted the payment of a higher final dividend. Having regard to the improvement in the Company's position and in order to keep profits tax to a minimum, the Board has declared a special interim dividend of 1s. 0d. per share in respect of the year ending June 30, 1959. This special dividend will require a sum of £349,000 and will be paid simultaneously with the final dividend. The regular interim dividend will be considered in May, 1959.

Operations in Ghana

Production results for the year show a 10% increase in yardage treated compared with last year, at a slightly improved overall grade.

The new plant at Aninchecheche is making good progress. The first half of the plant was completed at the end of June, 1958, and started production five months ahead of schedule. It is now estimated that the total cost of the completed project, including housing and other services, will be in the region of £900,000 instead of £800,000 which I forecast last year. It is hoped that the whole plant will be completed before the end of 1960.

POLITICAL DEVELOPMENTS: Our relations with the Ghana Government have continued to be very satisfactory.

In his last budget speech the Minister of Finance referred to proposals which, if given effect in law, would eventually require the Company to sell its diamond production from Ghana in the Accra Diamond Market. These proposals are receiving our earnest consideration.

In February, 1958, a Commission of Enquiry was set up to investigate timber and mining concessions in Ghana. The Commission sat from March to September and received evidence from landowners and concession holders. The Company presented the Commissioners with a comprehensive set of memoranda and reports on its position as one of the major concession holders. The Commission's final report is in the course of preparation but will not be published before the end of the year.

TRAINING: I have repeatedly stressed the importance of technical training of Ghanaians because the rate at which we can place Ghanaians in positions of responsibility on our mines without loss of efficiency, will largely depend upon the availability of trained personnel.

Forty apprentices are at present in our Trade Training Centre for artisans and twelve young men of suitable education will shortly start on our senior staff training course. In addition, we have at the moment twelve Ghanaians in the United Kingdom on various technical courses. These training schemes are expensive, the capital cost so far being about £50,000 and the operating expenditure around £20,000 per annum, but I consider that this heavy expenditure is essential so that we can make an appropriate contribution towards training Ghanaians to play the fullest part in the technical side of our operations.

Operations in Sierra Leone

Production results for the year show a 25% increase in yardage treated and also a slight increase in grade. A notable contribution towards this achievement was made by the new plant at Tongo which has been in full production since mid-November, 1957. The total cost of this plant, including houses and other services, was within the original estimate of £550,000.

A further wage increase was awarded during the year under review. Yet another increase was considered in August, 1958, and was the first such claim to be rejected since the present statutory wage negotiating machinery was set up after the war. I hope that the rejection of this claim by the Wages Board will lead to a levelling off in the labour costs of the mining industry in Sierra Leone which during recent years have risen at an alarming rate.

TRAINING: Parallel with the schemes which have been introduced in Ghana, our policy on Africanization in Sierra Leone is being pursued on similar lines through the operation of the Trade Training School at Yengema, and by financing the training in the United Kingdom of a number of employees.

The Problem in Kono

The larger police force authorized by the Sierra Leone Government for operation in our areas has resulted in a greater degree of control throughout a large part of the year, but all the measures required by the police to protect our leases were not made available by the Government. The local situation has also been aggravated by the issue to African diggers of large numbers of licences to mine diamonds in the areas surrounding our leases, irrespective of the ground available. As a result, security began to deteriorate in July. By last month the situation was again out of control, with mining by large concentrations of illicit miners taking place inside our central reserve areas. Incidents of violence, both against the police and against our own security forces, were frequent. As a result of the strongest representations by the Company and by the police themselves, the Government took action and this latest breakdown in law and order is now being brought under control. Once again the Government was warned of the growing danger beforehand but was slow to assert its authority in the face of local political agitation and unrest. It is regrettable to record that each time such a crisis occurs, calling for firm action on the part of the Government, the necessary remedial steps are only taken after considerable damage has been done.

It is significant that this latest outbreak of civil disobedience was largely instigated by the Kono people themselves and not by foreigners in the area, as in previous years. In my statement last year I said that a means had to be found to satisfy the aspirations of the Kono people in the district where we operate. Although law and order must be fully re-established before anything can be done, physical security alone may not be a constructive solution. We are glad to examine, without prejudice to our agreements, any schemes which the Government may propose with a view to establishing a lasting solution to the problem in Kono.

Taxation

OVERSEAS TRADE CORPORATION: We reported through the press last January that both this Company and Sierra Leone Selection Trust had qualified as Overseas Trade Corporations pursuant to the Finance Act, 1957. This has resulted in an initial and non-recurring benefit of approximately £290,000 and less tax will be payable in future.

UNITED KINGDOM PROFITS TAX: I welcome the provisions in the Finance Act, 1958, removing the two-tier profits tax system and replacing it by a tax at a flat rate of 10 per cent. This provision will go a long way towards simplifying the hitherto complicated system and will, I believe, produce a more equitable result. Although the Company, as an Overseas Trade Corporation, is now exempt from United Kingdom tax on its trading profits, we must still pay tax on our investment income and, in respect of this, the new profits tax will result in an appreciable tax saving.

The new legislation came into effect on April 1, 1958, and in respect of the three months to June 30, 1958, there is a saving of profits tax of approximately £35,000. In a full year there will be a greater saving, the amount of which will depend upon future results and dividends.

GHANA: Although its full effect on the

Company cannot as yet be ascertained, it is heartening to note the reduction in the rates of tax on Companies recently announced in Ghana. It is plainly desirable that Ghana should offer favourable taxation conditions in order to attract capital, and the reduction in the rates of tax is calculated to do this.

A Bill to replace the Ghana minerals duty by a profits tax was presented to the Ghana Parliament last year, but owing to opposition it was withdrawn by the Government. The Minister of Finance announced in his budget speech this year that the Bill will be re-introduced. The benefit which would result to this Company from the acceptance of the Bill has been reduced as a result of the Company's status as an Overseas Trade Corporation but the change would nevertheless be of benefit to us.

Future Outlook

It would appear that the world sales of diamonds during 1958 will be below the record figures attained in 1957, but I am confident that we may look forward to another satisfactory year's trading.

The accounts for last year reflect a sound financial position and, as already mentioned, a special interim dividend for the current financial year is to be paid with the final dividend recommended for last year. Provided there is no serious deterioration in the security position in the Sierra Leone lease areas, I think we can expect trading results for the current financial year to be no less favourable than those of the past year.

Finally, I should like to record my appreciation and thanks for the services rendered during the year by our management and staff both at home and overseas.

SOUTH AFRICAN TORBANITE MINING AND REFINING COMPANY LIMITED

(Incorporated in the Union of South Africa)

INCREASED SCALE OF OPERATIONS

HIGHER TURNOVER LARGELY OFFSETS RISING COSTS

MR. S. G. MENELL'S REVIEW

The 24th annual general meeting of the South African Torbanite Mining and Refining Company, Limited, will be held on December 4 in Johannesburg.

The following is the circulated review of the chairman, **Mr. S. G. Menell:**

Your company's operations during the financial year ended on June 30, 1958, earned a profit before taxation of £98,590—a reduction of £18,615 compared with the previous year. In the profit and loss account you will notice that the amount provided for amortization and depreciation of fixed assets has been increased by £26,551 to £126,186. As it is uncertain how much longer the Ermelo mine will be able to continue in profitable operation and in view of the impossibility of determining accurately the realization value of those assets which it would not be possible to utilize elsewhere, it was decided to set aside an amount of £20,000 this year for additional amortization.

Provision for taxation at £24,550 is on a higher level than that for the previous year, which included a portion of an assessed loss resulting from the increased amortization allowance applicable to the mine property.

Although the profit available after taxation was therefore reduced, it was decided to maintain the distribution to shareholders, and dividend No. 17 of 10% was accordingly declared on September 16, 1958.

Turning to the fixed assets, appearing on Schedule "A", you will see that there has been a reduction in total value of £106,604 after taking into account expenditure during the year and writing off depreciation.

Capital expenditure for the year amounted to £19,585 incurred mainly in further modifications to the existing refinery plant and in the replacement of vehicles.

As mentioned in the directors' report, investigations into the future development of the company are continuing and for this purpose, and, to provide for the ultimate repayment of the outstanding debentures and also to meet our further obligations to the Sasol Marketing Company Limited, our cash resources have steadily been conserved.

I hope to be able to give you more information on our plans for the future shortly.

Operations

The planned level of crude oil production was maintained at Ermelo during the year, in spite of more difficult mining conditions. With the improvement in railway transport facilities, it was possible to increase supplies of imported crude oil to the Refinery which, with the continued purchase of oil from Sasol, enabled the Refinery to process the highest volume so far attained.

Your Company, in common with other industries, experienced a continued rise in working costs during the year. This increase was, however, counter-acted to a large degree by the higher turnover.

Sales of bitumen reached a record level, but towards the end of the financial year there was a tendency for the demand to fall away. Every effort is being made to maintain the maximum possible level of bitumen sales on which your company's economy is vitally dependent. By technical improvements to the plant, it has been possible to produce an improved grade of bitumen which should assist materially in this direction. Any reduction in the volume of bitumen disposed of will, however, be reflected in a corresponding reduction in crude oil input and consequently in the profit earning of the company. Sales of cresylic acid, and coal from Ermelo property, were at a slightly reduced level compared with 1957.

The arrangements whereunder this company absorbs locally produced alcohol and benzole into its motor fuel continued satisfactorily. The Sasol Marketing Company purchased, under our agreement with them, the increased quantities of petrol manufactured by your company during the year.

You will appreciate that with the increased scale of our operations and the simultaneous investigation of schemes for the future, the year has been a strenuous one for all members of the company's staff, and on behalf of the Board I should like to tender to the management and staff of all sections throughout the company our congratulations and thanks.

LONDON METAL AND ORE PRICES, NOV. 20, 1958

METAL PRICES

Aluminium, 99.5%, £180 per ton
Antimony—
English (99%) delivered, 10 cwt. and over £190 per ton
Crude (70%) £190 per ton
Ore (60%) bases 19s. 6d./20s. 6d. nom. per unit, c.i.f.

Arsenic, £400 per ton
Bismuth (min. 1 ton lots) 16s. lb. nom.
Cadmium 9s. 6d. lb.
Cerium (99%) net, £16 0s. lb. delivered U.K.
Chromium, Cr. 99% 6s. 11d./7s. 4d. lb.
Cobalt, 16s. lb.
Germanium, 99.99%, Ge. kilo lots 2s. 5d. per gram.
Gold, 250s. 2¼d.
Iridium, £20/£22 oz. nom.
Lanthanum (98/99%) 15s. per gram.
Manganese Metal (96% - 98%) £290
Magnesium, 2s. 5¼d. lb.
Nickel, 99.5% (home trade) £600 per ton
Osmium, £17/£18 oz. nom.
Osmiridium, nom.
Palladium, £5/£5 15s.
Platinum U.K. and Empire Refined £21 5s. oz.
Imported £18 10s./£19 0s.
Quicksilver, £78 0s. ex-warehouse
Rhodium, £40/42 oz.
Ruthenium, £14/£16 oz. nom.
Selenium, 50s. 0d. per lb.
Silver, 77¼d. f. oz. spot and 76¼d. f'd.
Tellurium, 15s./16s. lb.

ORES AND OXIDES

Bismuth	65% 8s. 6d. lb. c.i.f. 18/20% 1s. 3d. lb. c.i.f.
Chrome Ore—	
Rhodesian Metallurgical (semifriable) 48% (Ratio 3:1)	£15 15s. 0d. per ton c.i.f.
" Hard Lumpy 45% (Ratio 3:1)	£15 10s. 0d. per ton c.i.f.
" Refractory 40%	£11 0s. 0d. per ton c.i.f.
" Smalls 44% (Ratio 3:1)	£14 0s. 0d. per ton cli.f.
Baluchistan 48% (Ratio 3:1)	£11 15s. 0d. per ton f.o.b.
Columbite, 65% combined oxides, high grade	nom.
Fluorspar—	
Acid Grade, Flotated Material	£22 13s. 3d. per ton ex. works
Metallurgical (75/80% CaF_2)	156s. 0d. ex works
Lithium Ore—	
Petalite min. 3½% Li_2O	40s. 0d./45s. 0d. per unit f.o.b. Beira
Lepidolite min. 3½% Li_2O	40s. 0d./45s. 0d. per unit f.o.b. Beira
Amblygonite basis 7% Li_2O	£25 0s. per ton f.o.b. Beira
Magnesite, ground calcined	£28 0s./£30 0s. d/d
Magnesite Raw (ground)	£21 0s./£23 0s. d/d
Manganese Ore Indian—	
Europe (46% - 48%) basis 55s. 0d. freight	83d./85d. per unit c.i.f. nom.
Manganese Ore (43% - 45%)	70d./75d. per unit c.i.f. nom.
Manganese Ore (38% - 40%)	50d./54d. per unit c.i.f. nom.
Molybdenite (85%) basis	8s. 11d. per lb. (f.o.b.)
Titanium Ore—	
Rutile 95/97% TiO_2 (prompt delivery)	£35/£36 per ton c.i.f. Aust'n.
Ilmenite 52/54% TiO_2	£11 10s. per ton c.i.f. Malayan
Wolfram and Scheelite (65%)	85s. 0d./90s. 0d. per unit c.i.f.
Vanadium—	
Fused oxide 95% V_2O_5	8s./8s. 11d. per lb. V_2O_5 c.i.f.
Zircon Sand (Australian) (63 - 66% ZrO_2)	£14 0s. per ton c.i.f.

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HARTEBEESTFONTEIN

(Incorporated in the Union of South Africa)

ANOTHER SUCCESSFUL YEAR

MINE'S PRODUCTION SHOWS CONSISTENT IMPROVEMENT

The ninth annual general meeting of Hartebeestfontein Gold Mining Company Limited will be held on December 4 in Johannesburg.

The following is the circulated review of the chairman, **Mr. B. L. Bernstein:**

The financial year ended June 30, 1958, was another successful year for your mine. The total working profit increased by £2.26 million due to higher tonnages milled and to increased recoveries of gold and uranium oxide. Earnings from the production of uranium oxide were substantially higher as this was the first full year of production. The working profit derived from uranium was £3,047,084 and represented approximately 45 per cent. of the total working profit.

As you are no doubt aware an agreement between the S.A. Atomic Energy Board and the Combined Development Agency restricts the sale of uranium to the Agency to 6,200 tons in any one year. The quota granted to your mine for the six months ended December 31, 1958, is 521,590 lbs. Your Company's present contract for the sale of uranium oxide will expire on December 31, 1966.

The total surplus for the year was £6,732,681 which, when added to the undistributed balance of £238,788 brought forward from the previous financial year, made £6,971,469 available for appropriation. £2,827,355 was appropriated for capital expenditure and repayment of loans and £2,925,000 equivalent to 6s. 6d. per share, was distributed to shareholders in dividends. The balance of £1,219,114 was carried forward to the current financial year. No provision has been made for taxation as the Company still had an assessed loss as at June 30, 1958, estimated at £3,423,358. At the present rate of profit and bearing in mind the capital exenditure programme, it is anticipated that the assessed loss will be absorbed towards the end of the current financial year and that the Company will become liable for tax and lease payments in respect of the financial year ending June 30, 1960.

Mine's Improved Performance

On the production side the mine has shown a consistent improvement as compared with the previous years performance. The average monthly milling rate increased from 76,666 tons to 84,833 tons.

The grade recovered at the mill has improved from 10.291 dwt. to 10.967 dwt. per ton. Working costs during the year decreased by 5d. per ton and 8s. 8d. per ounce as compared with the previous year's costs and averaged 65s. 2d. per ton and 118s. 10d. per fine ounce of gold, respectively.

Development Operations

Shareholders are aware that the Kromdraai fault, which strikes north-east/south-west, divides the mine into two distinct mining areas. The present stoping areas are confined to the south-eastern side of the fault, where the average depth of the reef is 3,000 feet below surface. The reef on the other side of the fault is some 3,000 feet deeper.

Your mine came into production on a comparatively low mill tonnage, all derived from mining operations in the shallow eastern portion of the mine. As profits were earned so operations were expanded and steps were taken to open up the deeper western portion of the property. At the end of 1956 sinking of a sub-vertical shaft, No. 2A, was commenced from the transfer level connecting No. 1 and No. 2 shafts some 3,000 feet below surface. No. 3 shaft was sited near the northern boundary of the mine and will serve as the main upcast ventilation shaft in the deep level area. The high profits earned not only enabled this policy to be pursued with vigour but also made the distribution of substantial dividends possible.

The first stage of the work necessary to open up the deeper portion of the mine is now well advanced. No 2A sub-vertical shaft intersected reef at a depth of 6,256 feet below the surface. No. 3 shaft sunk from surface had reached a depth of 5,341 feet on September 30, 1958. It is estimated that this shaft will intersect Vaal Reef at a depth of 5,680 feet. At No. 2A shaft a haulage on the transfer level, approximately 5,730 feet below surface, is at present being driven in a north-easterly direction to connect with No. 3 shaft.

On surface the first stage of expanding the gold plant is nearing completion and it is anticipated that the second stage will be completed by the end of the current financial year. The capacity of the gold plant will then exceed 130,000 tons per month. The output of the enlarged mill, however, will be governed by the mining conditions met with in the deeper area and by the availability of native labour. It is hoped that the milling rate will be increased progressively and will reach 112,000 tons per month towards the latter half of 1959.

In order to permit of greater latitude in the opening up and exploitation of the deeper area of the mine and to provide improved ventilation facilities in that area, an additional surface shaft will be required. This shaft, which will be known as No. 4, will be sited approximately 7,000 feet to the south of No. 2 shaft and will be sunk to a depth of approximately 7,500 feet from surface.

Exploratory development from No. 2A and No. 4 shafts will determine the shaft system which will be required ultimately to serve the western portion of the deeper area of the mine. Bearing in mind all the factors, including the fact that funds are now available for this purpose, your directors have decided that the sinking of No. 4 shaft should commence early in 1960. Permanent hoists have, therefore, been ordered and, in the interim preliminary work will be completed.

Capital Expenditure Programme

At the annual general meeting in November, 1956, I indicated that capital expenditure of some £6 million would be required during the following four years and at last year's meeting, held in November, 1957, I advised you that this estimate would be expected. During the past two years there has been a marked increase in the percentage of waste rock sorted both on surface and underground. While this has resulted in the earning of higher profits and in an increased rate of dividend payment, it has also increased the scale of underground operations and has necessitated an acceleration of the previously planned capital expenditure programme.

In addition, the underground pumping capacity as been doubled, the hoisting capacity is being increased and improvements to the uranium and reduction plants are being affected. Furthermore, owing to the nature of the ground encountered, sinking costs at No. 2A shaft have been higher than anticipated. Due to these circumstances it is now estimated that the amount to be spent during the four-year period ending June 30, 1960, including expenditure connected with No. 4 shaft, will be about £8,500,000, of which £4,600,000 had been spent at the end of the financial year under review. During the current financial year it is estimated that capital expenditure will be about £2,500,000.

RAND LEASES

(Incorporated in the Union of South Africa)

HIGHER TOTAL PROFIT

MR. S. G. MENELL'S REVIEW

The 26th annual general meeting of Rand Leases (Vogelstruisfontein) Gold Mining Company Limited will be held on December 1 in Johannesburg.

The following is an extract from the review of the chairman which had been circulated with the report and accounts:

The total profit for the year, including sundry non-mining revenue was £122,015 (compared with £97,525 for the previous year) and appropriations mainly for capital expenditure and dividends absorbed £110,184.

Working costs, at 37s. 8d. per ton milled, were 1s. 5d. lower than in the previous year and 5d. per ton lower than those for the year ended June 30, 1956. The lowering of working costs per ton milled is contrary to the general trend in the gold mining industry and is largely attributable to the increased volume of sweeping and reclamation accomplished during the year. The tonnage from sweeping, reclamation and sundry sources amounted to 19.9 per cent. of the total tons mined, an increase of 4.3 per cent. over the previous year.

A decrease in the amount of payable ore developed during the year caused a further decline in the total ore reserve. Compared with the ore reserve as at June 30, 1957, there is a decrease of 758,000 tons, an increase in value of 0.09 dwt. per ton and a decrease in the estimated stoping width of 1.1 inches.

Capital expenditure during the year amounted to £23,364. Expenditure on capital account during the current financial year is expected to be approximately £17,000 mainly on the completion of ventilation and pumping installations at No. 1 Tertiary shaft.

Your company has been in production since 1936 and the payable ore in its claim area is being rapidly depleted. Development on the Main Reef Series below the 36th level in the area served by No. 1 Tertiary shaft, will be virtually completed by the end of the current financial year. If the present development values and payability are maintained during the development period, the life of this area can be expected to be of two to three years duration under present conditions, and thereafter, as it is unlikely that the area below the Tertiary shaft workings will justify the considerable expense of exploration, ore from reclamation in the upper levels of the mine will constitute the principal source of tonnage to the mill.

EASTERN TRANSVAAL CONSOLIDATED MINES, LIMITED

(Incorporated in the Union of South Africa)

The 33rd annual general meeting of Eastern Transvaal Consolidated Mines, Limited, will be held on November 28 in Johannesburg.

The following is an extract from the review by the chairman, **Mr. L. P. Kent,** which has been circulated with the report and accounts:—

The total profit earned by all the branches of your Company during the year under review amounted to £186,924 compared with £193,553 for the previous year.

A dividend of 7½ per cent. (4½d. per share) was maintained for the year ended June 30, 1958. Pursuant to requests from a few members, the possibility of paying interim dividends was fully considered by your board who have come to the conclusion that it is not practicable.

Capital Expenditure

Net capital expenditure during the year, including the farm transactions mentioned below, amounted to £114,920, details of which appear in the attached reports.

Extensions to the Noordkaap Power Station, situated close to the New Consort mine, to which reference was made in my review last year, were completed during the year. A 3,000 kW turbine was installed and commissioned. Expenditure on this project amounted to £18,808 for the year.

Pneumoconiosis Act

Members will recall that in my review last year, I stated that the whole of the retrospective liability, to which your Company was committed by the Pneumoconiosis Act had been discharged. However, in terms of Section 61 of the Pneumoconiosis Act, 1956, an additional outstanding liability of £2,831 was levied on your Company during the year. This commitment has also been discharged.

X-ray equipment, to comply with the requirements of the Pneumoconiosis Act in regard to the initial and periodical radiographical examination of all natives employed in dusty occupations on all the mines of your Company has been purchased and, subsequent to the close of the financial year, has been installed in the newly erected native hospital at the New Consort mine. The total capital costs of the hospital and X-ray unit amounted to £10,367 during the year under review.

Mining—General

As envisaged last year additional accommodation is being provided for single native workers as required by the Native Labour Regulation Act, 1911, and the Native Administration Act, 1927. Steps are also being taken to improve the recreational facilities available to native workers at all your Company's mines.

Coal supplies, generally, have been adequate for the requirements of the power station and the mines.

Geological mapping and surface prospecting have been commenced in the vicinity of the old Mount Morgan workings, situated approximately four miles west of the Agnes mine.

Timber Activities

As a result of the expansion of your Company's timber and farming activities and those of its 94 per cent. owned subsidiary, Frantzina's Rust Timber Plantations, Limited, it was decided that the administration of these activities could best be performed by the subsidiary. Consequently Mr. J. W. Swardt was appointed General Manager of Frantzina's Rust Timber Plantations, Limited.

There was a sharp recession in the market for local timber products due to the price for imported structural timber dropping by over 30 per cent. and resulted in a loss of £15,214 for the year in the combined operation of your Company's plantations and mills, as against a profit of £958 for the previous year.

Two particularly damaging hailstorms occurred during November and December, 1957. It is estimated that the damage sustained amounted to approximately £17,051 and this sum has accordingly been written off the book value of the timber plantations account to the debit of the appropriation account.

Since the close of the year your Company suffered further setbacks. Firstly early in August approximately 580 acres of pine at the Mamre plantations were destroyed by a fire which was fanned by a 50 mile per hour wind; secondly at the end of September a further fire occurred in the Ameide plantations, destroying 72 acres of pine and 36 acres of saligna; the total estimated loss resulting from these two fires amounts to £21,500 of which your Company has to bear £2,000 in terms of its plantation insurance policy. Lastly there has been an infestation of Nudaurelia caterpillars in the Welgelegen plantation resulting in the exfoliation of approximately 200 acres of trees.

In order to consolidate the Ameide/Sassenheim block of plantations, two adjoining farms, namely, Estada No. 85 and Montrose No. 84, in extent 501 morgen and 1,737 morgen respectively were purchased during the year for £28,249. To finance these purchases portion of the farm Schoonoord No. 25, in extent 2,570 morgen and the farm Josefsdal No. 35, in extent 3,646 morgen, were sold for £46,415. The former is unsuitable for afforestation and the latter is too far from the railhead. The Company has retained the mineral rights over the farms sold.

Farming Activities

The profit from farming activities amounted to £1,114. Adverse weather conditions, a particularly damaging hailstorm, and a severe boll-worm infestation, seriously affected production and the quantity of citrus exported was negligible. A claim for £5,344 was made under the Company's insurance policy against hail damage and has been paid by the insurers.

Subsidiary Company Activities

Your Company's subsidiary, Frantzina's Rust Timber Plantations, Limited incurred an operating loss of £23,809 for the year, as compared with a profit of £7,533 for the previous year, and I refer members to my remarks, contained elsewhere in this review, regarding the sharp recession in the timber market.

EXPERIENCED MILL SUPERINTENDENT required for start-up and operation of new 20,000 tons per month gold mining plant in Tanganyika. Applicants should preferably possess a Degree and be sufficiently experienced to assume full responsibility for all milling operations covering crushing, grinding, amalgamation and cyanidation sections. Salary according to experience. 2½-year tour with five months' overseas leave, contributory Superannuation Fund. Free passages self, wife and family.

Apply by letter with full details of training and experience to Consulting Engineer, New Consolidated Gold Fields, 49 Moorgate, London, E.C.2.

SOUTHERN RHODESIA GOVERNMENT

VACANCY: MECHANICAL AND ELECTRICAL ENGINEER

Duties include inspection and testing of mechanical and electrical installations on mines, supervision of Mines Department workshops, valuation of and reporting on mining plant.

Minimum qualifications are Certificates of Competency for Mechanical and Electrical Engineers issued in terms of the Mines and Works Act of the Union of South Africa or the equivalent and seven years' practical experience in the mining industry.

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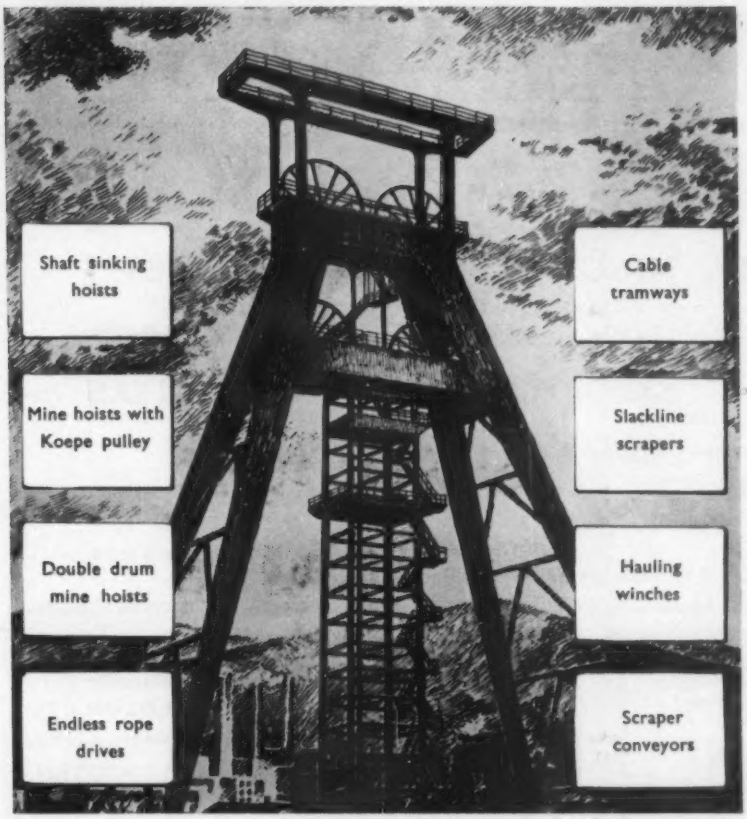

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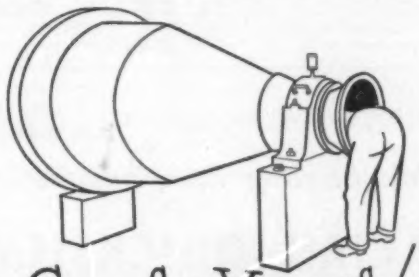

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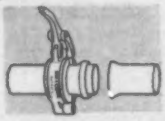
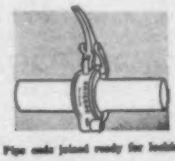
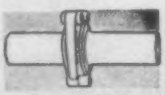


Rubber gasket in position and joint ready to pull over.



Pipe ends joined ready for locking.



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